

# USER MANUAL

## ALX 73x Print & Apply System



## Content

### Please note -6

#### General notes -6

Validity of this manual and required compliance -6

How information is represented -7

#### For your safety -9

Intended use -9

Information and qualification -9

Operating safety of the machine -11

Every time before starting production -13

Warning notes on the machine -13

### Technical Data -15

#### Entire unit -15

Dimensions -15

Connection, unit data -16

Label material -16

Ambient conditions -17

Certificates -17

#### Print module -18

Performance data -18

Thermal transfer ribbon -21

Automatic ribbon economy -22

Interfaces -24

Electronic equipment -24

#### Dispensing module -25

Variables -25

Label sensor -25

Interfaces -25

Electronic equipment -26

### Product description -27

#### Overview -27

Designs of the ALX 73x -27

Configurations of the ALX 73x -28

Functionality -28

Operating components -30

Control panels -33

Connections -35

#### Options -37

External control panels -37

Fixed dispensing edge -37

Swivelling dispensing edge -37

Spring-loaded dispensing edge -37

Pneumatic dispensing edge -38

V-shape dispensing edge -38

Adjustable dispensing edge holders	-38
Adjustable head joint	-39
Roll diameter sensor	-39
Cable kit for internal roll diameter monitoring	-39
Additional material guiding disc	-40
Capacitive label sensor	-40
Applicator interface	-40
Blow-on applicator LA-BO	-41
Tamp-on applicator LA-TO	-41
Double deflection roller	-41
Signal beacon	-42
Splice table	-42
Operating modes of the dispenser	-43
Overview	-43
Online mode	-44
Offline mode	-46
Printer operating modes	-49
Overview	-49
Online mode	-50
Offline mode	-52
Standalone mode	-55
Dispenser parameter menu	-56
Overview of parameter menu	-56
Information about the parameter description	-58
Tips for data entry in the parameter menu	-58
LABEL SETUP menu	-58
MACHINE SETUP menu	-60
Printer Parameter Menu	-63
Overview of parameter menu	-63
Information about the parameter description	-63
PRINT PARAMETERS menu	-64
SYSTEM PARAMETER menu	-66
SPECIAL FUNCTION menu	-67
SERVICE FUNCTIONS menu	-68
<b>Startup &amp; Operation</b>	<b>-69</b>
Electrical connections	-69
Connecting to the mains power supply	-69
Connecting to a data host	-70
Connecting sensors	-71
Inserting label material	-72
Inserting the label roll	-72
Threading in the label web	-73
Replacing a label roll	-79

Inserting/replacing ribbon	-80
Inserting ribbon	-80
Changing ribbon	-81
Mechanical settings	-83
Adjusting the core diameter of the unwinder	-83
Positioning the pressure roller	-83
Position the label sensor on the dispensing edge	-84
Position the label sensor in the printer	-84
Setting the ribbon tension	-85
Setting the printhead pressure	-86
Setting the return force of the unwinder dancer lever	-87
Setting the return force of the linear dancer lever	-88
Switching the unit on and off	-89
Switching the machine on/off	-89
Setting and monitoring the dispenser	-90
Settings in parameter menu	-90
Monitoring functions	-93
Setting and monitoring the printer	-96
Settings in parameter menu	-96
Monitoring functions	-97
Printing	-98
Creating print jobs	-98
Installing the printer driver	-98
Transferring a print job	-98
Using product profiles (dispenser)	-100
What are product profiles?	-100
Loading a product profile	-100
Saving a product profile	-101
Deleting a product profile	-102
<b>Operating faults</b>	<b>-103</b>
Material tear	-103
Status messages in case of material tear	-103
Repairing material tear	-103
Material tear on the linear dancer lever	-103
Status messages on the dispenser	-104
Error messages	-104
Warnings	-104
Reference status messages - dispenser	-106
List of warnings	-106
List of error messages	-107
Status messages on the printer	-113
Error messages	-113
Reference status messages - printer	-114
List of error messages	-114



## **Cleaning -116**

Cleaning instructions -116

Safety -116

Cleaning agents -116

Cleaning interval -116

General cleaning -117

Printhead -118

General notes -118

Cleaning the printhead -119

Replacing printheads -121

Testing the printhead -122

Rubber rollers -123

Feed rollers/print roller -123

Pressure roller -124

Deviator rollers -125

Sensors -126

Cleaning the punch sensor -126

Cleaning the material end sensor -127

Cleaning the ribbon path -128

Replacing the filter liner -129

## **EU Declarations -130**

EU Declaration of Conformity -130

EU Declaration of Incorporation -131

Appendix regarding the Declaration of Incorporation -132

# Please note

## GENERAL NOTES

### Validity of this manual and required compliance

#### Contents


The complete operating manual for the ALX 734, ALX 735 and ALX 736 print & apply systems consists of the following parts:

Manual	Target group	Medium	Availability
User manual	Operating personnel	Printed	Comes with machine
Installation manual		User-Docu-CD	
Service manual	Service personnel	Service-Docu-CD	Must be ordered separately <sup>a</sup>
Spare parts catalogue			

a) Only for certified and qualified service technicians or OEM partners.

This operating manual refers exclusively to the machine types listed above. It is used for proper operation and adjustment of the machine.

The machine must be properly installed and configured to allow for operation and settings.

For information about the required qualification, see section **Information and qualification**  on page 9.

For information about installation and configuration, see the service manual.

For technical questions not covered in this operating manual:

→ Follow the instructions of the service manual for the label dispenser

or

→ Request a service technician from our sales partner.

Our sales partner's customer service department is available especially for configuration settings and malfunctions.

#### Technical release

Technical release: 10/2020

Software versions:

- Dispenser: 2.76
- Printer: 6.75 SR2

#### Liability

Novexx Solutions reserves the right:

- to make changes in design, parts and software and to use equivalent parts instead of those specified for the purpose of technological progress.
- to change information in this manual.

Any obligation to extend these changes to machines previously delivered is excluded.

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## How information is represented

### Explanation of symbols

To enhance readability and make information easier to find, different types of information are identified:

→ Instruction with no order of tasks assigned

1. Numbered instructions introduced by preceding text

2. The specified order must be followed!

▮→ Special note for action that must be performed.

☹ Explanation of an error cause in the reference of error messages.

- Enumeration of features
- Other feature



The Experts symbol identifies activities that are reserved exclusively for qualified and specially trained personnel.



The information symbol identifies notes and recommendations as well as additional information.

### Notes about hazards and risks

Important instructions that must absolutely be followed are specially highlighted:



#### WARNING!

A warning symbol refers to risks that can result in severe or fatal injuries! The note contains safety measures to protect affected persons.

→ Instructions must be followed without exception.

#### CAUTION!

A caution symbol refers to risks that can result in property damage or personal injury (minor injuries). The note contains instructions for preventing damage.

→ Instructions must be followed without exception.



### Illustrations

Illustrations appear in the text where required. References to these illustrations are shown in [square brackets] containing the number of the illustrations. Uppercase letters after an illustration number, for example [12A], refer to the corresponding item within the illustration.

Normally the machine is shown as the right version. The left version is only shown if there is a need to make a distinction.

**Key symbols**

Keys in the *dispenser control panel* are represented as symbols.

If multiple keys must be pressed simultaneously, the symbols are joined in the text by "+":  + 

Keys in the *printer control panel* are represented as text, for example "Press the ONLINE key".

**Parameters**

Parameters in the parameter menu are represented in the format MENU NAME > Parameter name in grey type.

## FOR YOUR SAFETY

### Intended use

Print & Apply systems of series ALX 73x are designed for printing, dispensing and applying self-adhesive labels using the direct thermal or thermal transfer procedure. The individual versions (ALX 734, ALX 735, ALX 736) differ in the maximum print width.

Various combinations of thermal transfer ribbons and label materials are used and must be available in the form of rolls.

The label material that is used must be punched, i.e. the self-adhesive labels adhere individually, separately by punchings, on a carrier material. The labels must only adhere strongly enough so that they will come loose when the material is deflected over a sharp edge.

Any other type of or more extensive application will be considered non-intended use.

NOVEXX Solutions shall assume no liability for damage resulting from non-intended use of the machine.

### Information and qualification

#### Ensuring the necessary qualification

- Only fully trained and authorised personnel are permitted to operate, adjust and maintain the machine.
- Service work must only be performed by qualified and appropriately trained technical specialists (service technicians) or the customer service department.
- Areas of responsibilities for operating and servicing the machine must be clearly defined and consistently observed.
- Personnel must also be regularly instructed in on-the-job safety and environmental protection.

#### Qualification for operation

The instruction provided for the operating personnel must ensure:


- that the operating personnel can use the machine independently and without danger.
  - that the operating personnel can rectify minor operating faults (for example a paper jam) independently.
- At least 2 persons should be instructed in operation.
  - Have a sufficient quantity of label materials available for tests and instruction.

#### Qualification for system integrators and service technicians



Knowledge required to install the Print & Apply system and perform service work must be demonstrated through appropriate qualification. Only service personnel with technical training are able to assess the tasks to be performed and recognise potential dangers.

- Knowledge acquired through technical training in mechanics and electronics (for example in Germany the training to become a mechatronics engineer).
- Participation in a technical training course for the corresponding label dispenser offered by the manufacturer.
- The service personnel must be acquainted with the functionality of the label dispenser.
- The system integrator must be acquainted with the functionality of the of the system into which the label dispenser is being integrated.

Tasks	System integrator	Operator	Service technician
Mount the machine	X		
Connect	X		
Make settings	X		
Switch on/off	X	X	X
Insert/change material/ribbon	X	X	X
Application-related settings	X	X	X
Rectify minor operating faults <sup>a</sup>	X	X	X
Clean the machine		X	X
Rectify major operating faults <sup>b</sup>			X
Settings to the electronics/ mechanics			X
Repairs			X
 Manual:	Service manual, Installation manual	Operating Manual	Service manual, spare parts catalogue

[Tab. 1] An example of the distribution of tasks among different qualified personnel.

a) For example faults when detecting labels

b) For example incorrect labelling

**Making note of information****WARNING!**

The label dispenser can only be operated safely and efficiently by complying with all of the requisite information!

- Before beginning operation, read this operating manual and follow all of the instructions.
- Observe all additional safety and warning information given on the label dispenser.
- Only technically knowledgeable persons are permitted to operate the label dispenser and make settings on it.

Any product liability and warranty claims will not be valid unless the machine is operated according to the instructions in the operating manual.

**Keep product information at hand**

This operating manual

- must remain readily available for operating personnel at a location near to the machine
- must be kept in legible condition.
- If the machine is sold, it must be made available to the new owner.
- The safety and warning symbols and messages on the machine must be kept in a clean and legible state. Replace any signs that are damaged or missing.

## Operating safety of the machine

### Intended use

→ The machine must only be used in accordance with the specifications in section **Intended use** auf Seite 9.

### Warning of injuries due to electrical shock



#### WARNING!

This unit operates at mains voltage! Contacting electrically live components can cause lethal electrical shocks and burns.

#### Installation:

- Only operate the machine when the enclosure is properly installed.
- The machine must only be connected by an authorised technician who is acquainted with the associated dangers.
- The machine must only be connected with other machines if they meet the requirements of a SELV circuit (Safety Extra-Low Voltage circuit) in accordance with EN 60950.
- Keep the machine's On/Off switch accessible.
- In case of emergency switch off the machine.

#### Cleaning:

- Before cleaning and maintenance, switch off the machine and pull out the main plug.
- Keep the machine dry.
- If a liquid gets into the machine, switch off the machine immediately and unplug the mains contactor. Notify a service technician.

#### CAUTION!

If the supply voltage is too high or too low, the machine may be damaged.

- Only operate the unit at the mains voltage given on the type plate.
- Ensure that the mains voltage set on the machine corresponds to the local mains voltage.

**Warning of injury hazards from mechanical components****WARNING!**

Danger of injury due to moving and rapidly rotating parts!

- Maintain a safety clearance from the machine when it is in operation.
- Never reach into a machine that is running.
- Switch off the machine before making any mechanical adjustments.
- Keep clear of the area around moving parts even when the machine is stopped if there is any possibility of the machine starting up.

Dancer levers work by spring tension and may snap back if the track tension of the label material suddenly decreases.

- Always keep clear of the range of motion of the dancer levers.

Entanglement hazard!

- When working in the vicinity of machines in operation, do not wear ties, loose clothing items, jewellery, wrist watches or similar objects on your body.
- Long hair must be kept in a hair net and must not be worn loose.

Crushing hazard on the dispensing edge due to products on the conveyor equipment!

- If the machine is running or ready for operation, never reach between the product and the dispensing edge.
- Never remove or bypass the protective equipment to prevent reaching in while the machine is in operation.

Tripping hazard!

- Lay the connection cable and pneumatic hoses (if fitted) so that no one can trip over them.

Danger of injury caused by falling label roll!

- Wear safety shoes.

In applicator mode:

Danger of crushing between dispenser edge and applicator pressure plate due to applicator movement!

- The applicator must only be operated with higher-level protective equipment <sup>a</sup>.
- If the machine is running or ready for operation, never reach between the applicator and the dispensing edge.
- Never remove or bypass the protective equipment to prevent reaching in while the machine is in operation.

a) Movable, locked, separating protective equipment (EN 953)



## Every time before starting production

### Due diligence of the operator and service personnel

→ Ensure that the following requirements are met in accordance with details specified in the service manual:

- The machine must be set up and configured to meet applicable requirements.
- All necessary safety equipment must be installed.
- The machine must have successfully completed at least one test run.
- The machine must be connected to the energy supply.

→ Make the requisite personal protective equipment available to the operating personnel, for example hair nets. Ensure that the protective equipment is used properly.

### Due diligence of the operating personnel

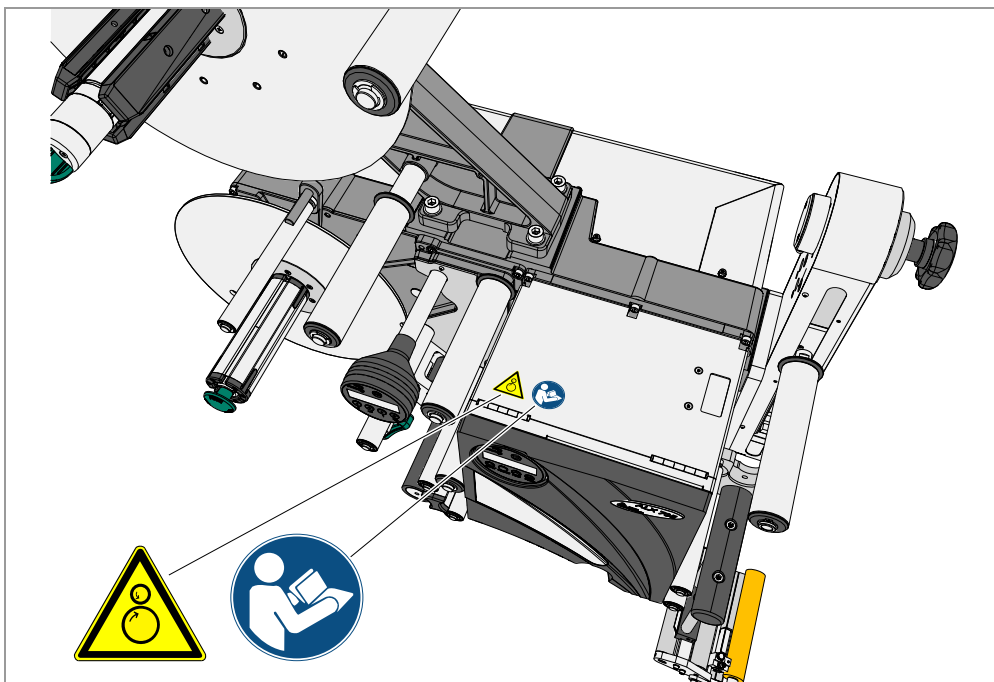
- Check the safety equipment to ensure it is working correctly.
- Check the machine for visible damage. Report defects that are discovered immediately.
- Use personal protective equipment properly, for example wearing a hair net.
- Remove material and objects that are not required from the working area of the machine.
- Ensure that only authorised persons remain in the working area of the machine.
- Ensure that no one can be endangered by the machine starting up.

## Warning notes on the machine

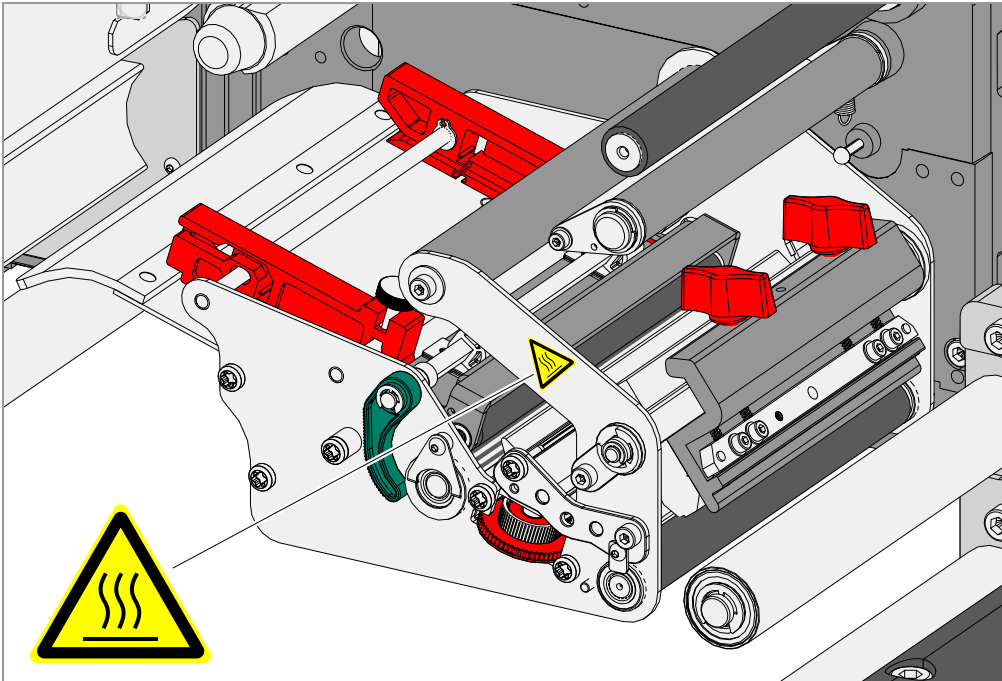
### CAUTION!

Warning notes on the machine provide important information for the operating personnel.

- Do not remove warning notes.
- Replace missing or illegible warning notes.



[1] Warning notes on the ALX 92x



[2] Warning note on the ALX 92x

Warning note	Meaning	Article no.
	The 'Pinch point' warning note warns you of the danger posed by the machine's rotating parts; they can trap items and draw them in.	A5346
	The "Hot surface" symbol warns of a burn hazard if the surface is touched. Allow the device to cool off before touching it.	A5640
	The blue label 'Read manual' demands that operators read the user manual.	A5331

[Tab. 2] Meaning of the warning notes.

# Technical Data

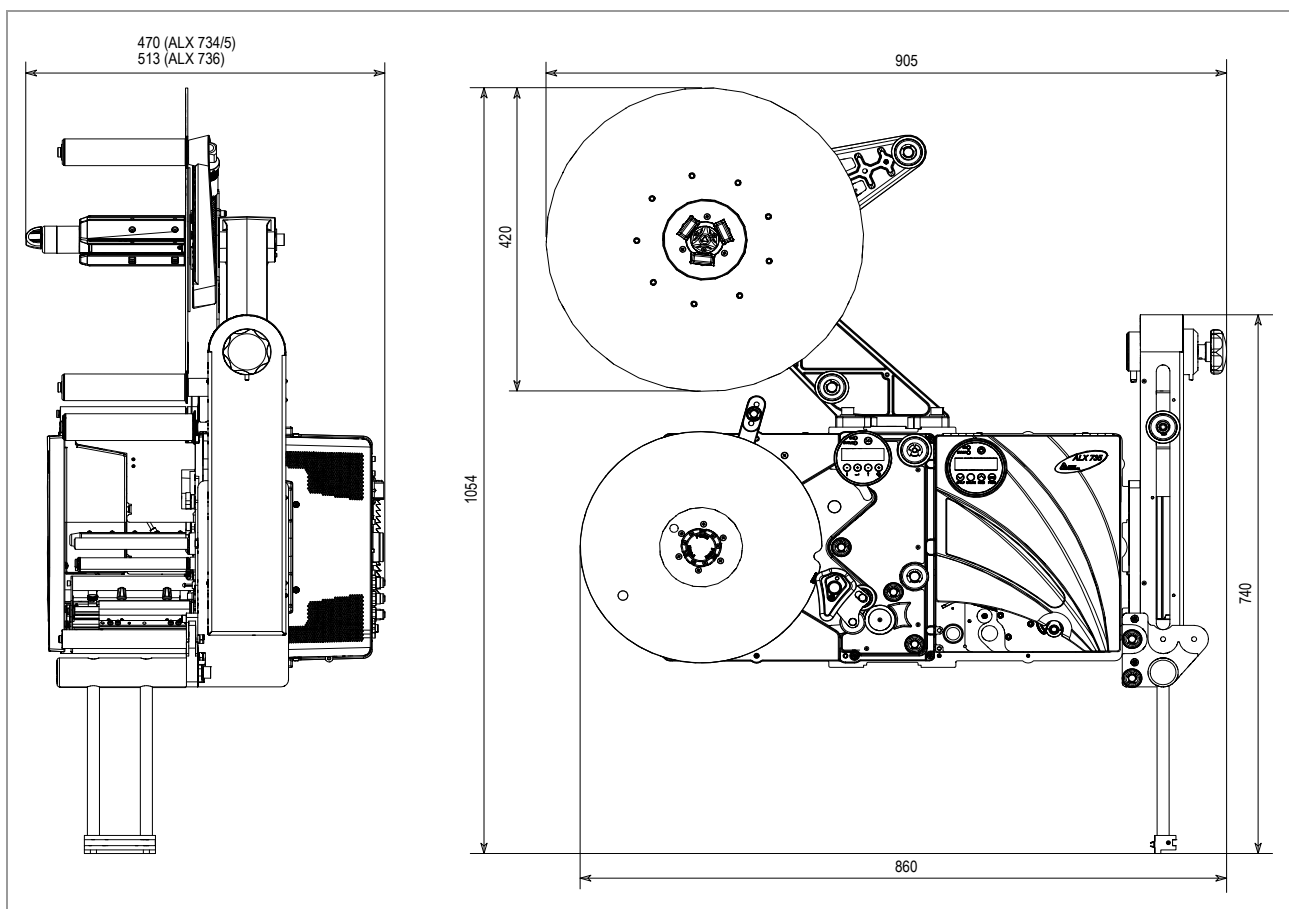
## ENTIRE UNIT

### Dimensions

#### Dimensions

The amount of space required by the machine depends on which configuration is used (see installation instructions in the Service manual).

- ALX 734/5: 1054 x 905 x 470 mm (H x W x D) <sup>1</sup>
- ALX 736: 1054 x 905 x 513 mm



[3] Dimensions of a ALX 73x with top-mounted 400 mm unwinder without dispensing edge.

### Weight

The weight of the machine depends on the configuration that is used.

Examples:

- ALX 734/5 with 300 mm unwinder and fixed L-shape dispensing edge: 65 kg
- ALX 736: with 400 mm unwinder and fixed L-shape dispensing edge: 71,4 kg

1) With top-mounted 400 mm unwinder without dispensing edge

## Connection, unit data

Property	Value
Protection rating	„I“
Mains voltage	100-240 V (AC)
Mains frequency	60/50 Hz
Power consumption	Max. 750 W
Power input	5.5-3.0 A

## Label material

### Material types

Self-adhesive, punched labels on carrier material.

Thermal direct material, thermal transfer material, plastic ribbon: PE, PP, PVC, PA in rolls.

### Material width

- ALX 734/5: 30 -136 mm
- ALX 736: 50-190 mm

Recommendation: For applications at variable apply speed, the label width should be at least 45 mm, to enable the defined label stop accuracy.

### Label length

Min.	Max.	Condition
25	220	Standard dispensing edge holder and fixed L-shape dispensing edge
	440	• Elongated dispensing edge holder <i>or</i>
		• Adjustable dispensing edge holder
	750	• Elongated dispensing edge holder <i>or</i> • Adjustable dispensing edge holder <i>and</i> Double deflection roller at the linear dancer lever

[Tab. 3] Label lengths in millimeters that can be processed with the ALX 73x

See service manual, topic section „Installation“.

- Chapter „Unpacking and assembling the machine“ > „Configuring the dispensing edge holder“
- Chapter „Mounting of options“ > „Dancer lever unit with double roller“



### Label pitch

Distance between labels on the carrier material:

- min. 1.0 mm
- max. label length -15 mm

**Label roll**

- *Winding direction*: Labels facing inward or outward
- *Unwinder outside Ø*: max. 300/400 mm (depending on the unwinder size)
- *Rewinder outside Ø*: max. 300 mm
- *Core inside Ø*: 38.1 / 76.2 / 101.6 mm (1.5 / 3 / 4")

**Ambient conditions**

Property	Value
Operating temperature	5 to 40°C
Storage temperature	-4 to 60°C
Air humidity	45 to 75% (non-condensing)
Protection class	IP 21
Noise emissions	< 70dB(A)
Installation location	<ul style="list-style-type: none"> <li>• Inside buildings</li> <li>• Protected from wind and spray water</li> <li>• Dry</li> <li>• Not in areas with potentially explosive atmosphere</li> </ul>
Sea level	Operation to max. 2000m above sea level

**Certificates**

CE, TÜV-Mark, <sub>C</sub>TÜV<sub>US</sub>-Mark, FCC, EAC

The regulation DIN EN 55022 demands for class A devices the following text to be printed in the manual:

„WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.“

The FCC regulation demands the following information text for class A devices:

„NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense“

## PRINT MODULE

### Performance data

#### Printhead

- *Printing technology:* Thermal direct or thermal transfer printing
- *Printhead type:* "Corner Edge"
- *Printhead variables:*

Printer	Resolution (dots/mm)	Resolution (dpi)	Max. print width (mm)
ALX 734	12.0	300	104
ALX 735			127
ALX 736			160

[Tab. 4] Printhead variables.

#### Print speed

Printer	Print speed (mm/s)	Print speed (inch/s)
ALX 734	50-400	2-16
ALX 735		
ALX 736	50-300	2-12

[Tab. 5] Overview printspeed.

#### Label sensor

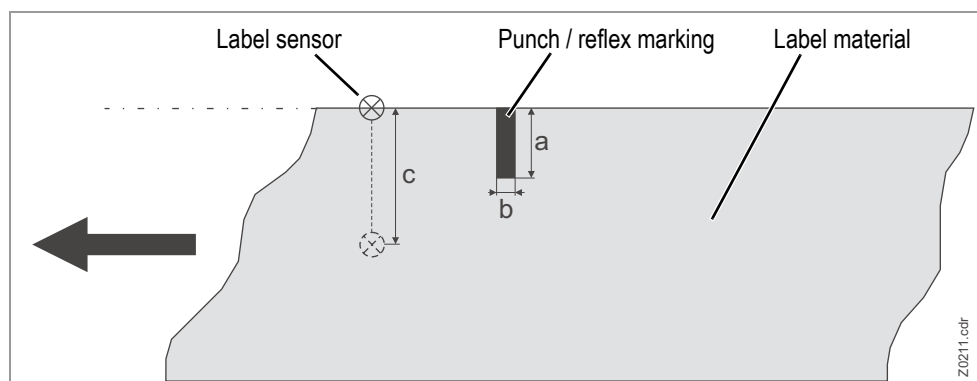
Self-initializing *light-transmission sensor* for punched label material.

(Optional) combination light barrier *light-transmission/reflex* for punched material or material with reflective marks.

- ALX 734/5: 2-80 mm
- ALX 736: 2-100 mm

Recommended punch dimensions.

- Punch length [4b]: 0.8-14 mm
- Punch width [4a]: min. 4 mm



[4] Dimensions and adjustment range of the punch / reflex marking.

**Max. print length**

The maximum print length depends on the following factors:

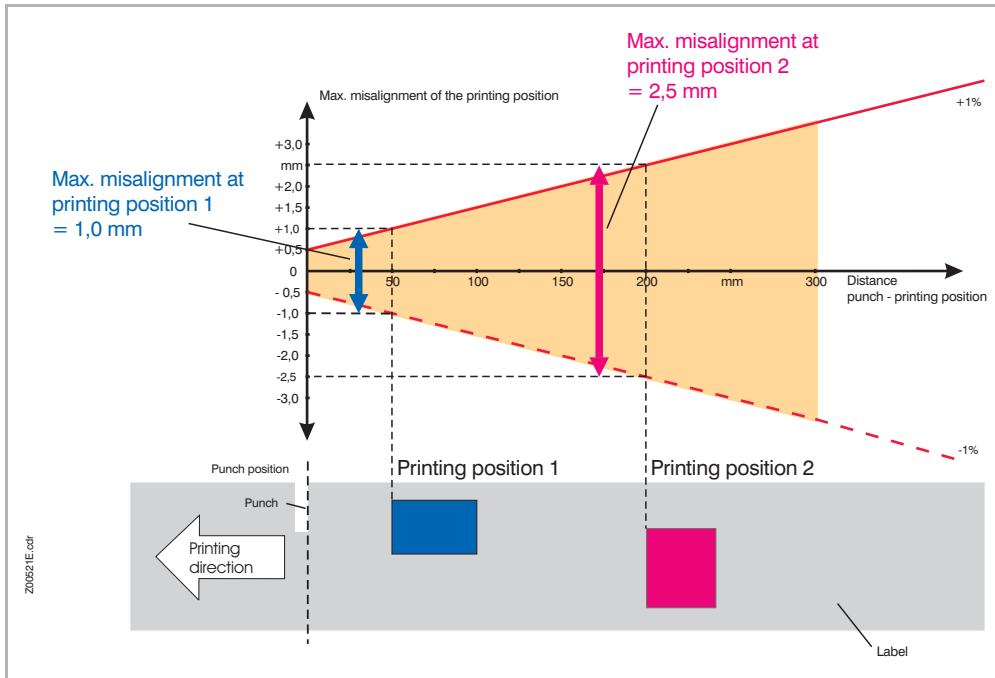
- Printer type
- Printer resolution
- Firmware version
- Parameter settings for memory configuration  
(for example SYSTEM PARAMETER > Free store size)

**Impression accuracy**

- In printing (y-) direction:

The impression accuracy depends on the print position. With the printout starting directly at the punch position, the accuracy is  $\pm 0.5$  mm. A distance between punch (that is label start) and print position will add  $\pm 1\%$  of this distance to the accuracy fault (see fig. [5]).

- X-direction:  $\pm 0.5$  mm.



[5] Impression accuracy in printing direction, depending on the printing position.

**Zero line**

Offset of the material zero line from the print zero line: 1 mm (i.e. one strip 1 mm in width on the inside label edge cannot be printed).

**Character sets**

- 17 character sets with fixed size (fixedfonts) including OCR-A and OCR-B
- 3 Scalable character set (speedo fonts)
- TrueType character sets are supported (in Unicode as well)
- TrueType, speedo and fixed size fonts can be optionally stored on a memory card

**Code pages**

- DOS 437
- DOS 850
- ANSI 1250
- ANSI 1252
- UTF 8
- Legacy code page (7 bits)

**Character modification**

- Scaling in x/y direction up to a factor 16
- Rotation by 0, 90, 180, 270 degrees

**Graphic formats**

BMP, PCX, JPG, TIF, GIF, Easy-Plug logos

**Barcodes**

Codabar	Code 128 A, B, C
Code 128	Code 128 UPS
Code 128 Pharmacy	ITF
Code 2/5 matrix	MSI
Code 2/5 Interleaved	EAN 8
Code 2/5 5 lines	EAN 13 Appendix 2
Code 2/5 Interleaved Ratio 1:3	EAN 13 Appendix 5
Code 2/5 Matrix Ratio 1:2.5	EAN 128
Code 2/5 Matrix Ratio 1:3	Postal code (guide and ID code)
Code 39	UPC A
Code 39 Extended	UPC E
Code 39 Ratio 2.5:1	Code 93
Code 39 Ratio 3:1	

All barcodes are scalable in 30 widths with freely scalable height

**Two-dim. barcodes**

Data Matrix Code (coded based on ECC200)
Maxi code
PDF 417
Codablock F
Code 49
QR Matrix Code



**GS1 Databar & CC Barcodes**

Reduced Space Symbology (GS1 Databar) and Composite Component (CC) Barcodes:

GS1 Databar-14	UPC-A + CC-A/CC-B
GS1 Databar-14 truncated	UPC-E + CC-A/CC-B
GS1 Databar-14 stacked	EAN 13 + CC-A/CC-B
GS1 Databar-14 stacked omnidirectional	EAN 8 + CC-A/CC-B
GS1 Databar limited	UCC/EAN 128 + CC-A/CC-B
GS1 Databar expanded	UCC/EAN 128 + CC-C

**Printer emulation**

Easy-Plug

**Thermal transfer ribbon**

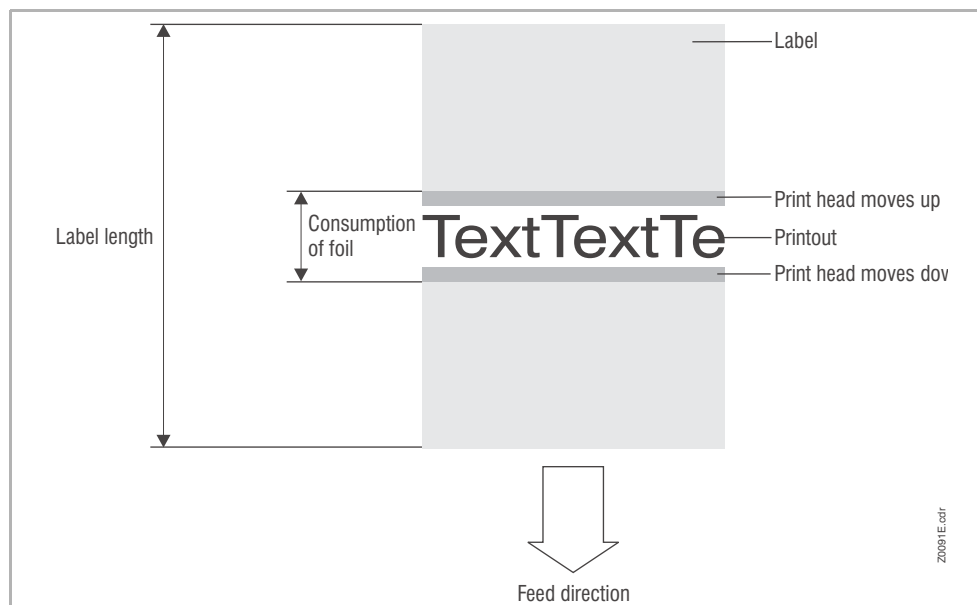
Property	Dimension
Outer Ø	max. 110 mm <sup>1</sup>
Core inside Ø	25,4 mm (1") 40,2 mm (1.6") <sup>2</sup>
Width <sup>3</sup>	20 -140 mm
Winding direction	Coloured side wound inward or outward

[Tab. 6] Dimensions of usable ribbon rolls.

- 1) Corresponds to 1000 m standard ribbon type Novexx 10297-1000-xxx with a ribbon core of 40.2 mm.
- 2) With ribbon core adapter (accessory)
- 3) As a general rule, the thermal transfer ribbon must overlap the label being printed on both sides by 2 mm.

## Automatic ribbon economy

In regular print mode, ribbon is fed simultaneously with the labelling material. The automatic ribbon economy (= „ribbon saving“) stops the feeding of the ribbon if there are label areas of a certain size without imprinting. As a result, ribbon is saved [6].



[6] Ribbon (Foil) consumption when printing labels with a small imprinting area and activated automatic ribbon economy. Ribbon consumption is slightly higher than the length of the imprinted area.

The effect of ribbon saving depends on the print speed. The reason for this is the up and down movement of the print head as well as the acceleration and slowing-down of the ribbon. Generally said: With a high print speed, less ribbon is saved as with a low print speed (Tab. 7).

Cutting or dispensing applications can additionally deteriorate the effect of ribbon saving.

**Activate** the automatic ribbon saving: See parameter **SYSTEM PARAMETER >**

Ribbon autoecon..

Setting the *minimum distance* between two print areas from which on ribbon saving should be activated: See parameter **SYSTEM PARAMETER > Ribb. eco. limit.**

► Mind the minimum length of unprinted area, see Tab. 7.

Print speed in mm/s (Inch/s)	Minimum length of unprinted area in mm	Consumed ribbon per saving action in mm
51 (2)	3.7	1.2
76 (3)	4.6	1.9
102 (4)	5.9	3.1
127 (5)	7.4	4.4
152 (6)	8.9	5.9
178 (7)	11.1	7.6
203 (8)	14.1	9.5
229 (9)	17.6	11.3
254 (10)	21.3	13.6
279 (11)	25.3	15.9
305 (12)	30.0	18.5

[Tab. 7] The amount (length) of consumed ribbon per saving action (lifting and lowering of the print head) increases with the print speed.

Print speed in mm/s (Inch/s)	Minimum length of unprinted area in mm	Consumed ribbon per saving action in mm
330 (13)	34.5	21.2
356 (14)	39.9	24.2
381 (15)	45.6	27.3
406 (16)	51.3	30.5

[Tab. 7] The amount (length) of consumed ribbon per saving action (lifting and lowering of the print head) increases with the print speed.

CAUTION! - If huge ribbon rolls (run length of 1000m) are supposed to be used with activated ribbon economy function, there is a hazard of the ribbon tearing off.

→ Consider the limitations according to Tab. 8 and Tab. 9!

Ribbon width	Ribbon type 10287-600-...			
	030	055	080	104
Max print speed with ribbon economy activated (inch/s)	12	12	12	12
Release the ribbon brake ... turns <sup>1</sup>	12	8	6	6


[Tab. 8] Limitations for ribbon type 10287-600-..., depending on the ribbon width.

1) Tighten the red hex nut at the unwind mandrel to the limit and then loosen it the indicated number of turns.

Ribbon width	Ribbon type 10297-1000-...			
	030	051	080	102
Max print speed with ribbon economy activated (inch/s)	12	10	9	6
Release the ribbon brake ... turns <sup>1</sup>	12	8	6	6

[Tab. 9] Limitations for ribbon type 10297-1000-..., depending on the ribbon width.

1) Tighten the red hex nut at the unwind mandrel to the limit and then loosen it the indicated number of turns.

For details on setting the ribbon brake refer to the user manual, chapter „Startup and operation“ > „Mechanical settings“ > **Setting the ribbon tension**  on page 85.

## Interfaces

Interface	Std.	Opt.	Details
RS-232	X		Baud rate: 1200-115200, 8 bits; suitable connection cable: 1:1 Sub-D9 extension cable (plug/socket)
RS-232 (additional)		X	Optional (I/O board): Baud rate: 1200-115200, 8 bit; Sub-D 9
RS-422/485		X	Optional (I/O board): Sub-D15, baud rate: 1200-115200, 8 bits
Ethernet	X		10/100 Base T with TCP/IP, LPD, RawIP printing, DHCP, HTTPD, FTPD
USB (V1.1)	X		2x USB-A host port, 1x USB-B device port, transfer rate 12 Mb/s.

[Tab. 10] Data interfaces on the ALX 73x print module.

## Electronic equipment

Feature	Details
CPU	32 Bit MIPS
RAM	64 MB
ROM	4 MB
Memory cards	SD
Real-time clock	Fitted
Control panel	5 keys; LCD graphical display with 128x32 pixels; typically two lines are displayed with 16 characters each

[Tab. 11] Electronic equipment for print module ALX 73x.

## DISPENSING MODULE

### Variables

- *Dispensing speed*: Up to 50 m/min
- *Label stop accuracy* on the dispensing plate
  - At a constant dispensing speed:  $\pm 0.5$  mm
  - At a variable dispensing speed (range of 5-50 m/min):  $\pm 1.0$  mm
- *Speed control*: Fixed setting or automatic speed adaptation via encoder

### Label sensor

- *Sensor type*: Transmission sensor; NPN/PNP (switchable)
- *Distance from the dispensing plate*: L-shape dispensing edge: 19 mm

### Interfaces

#### Data interfaces

Interface	Details
Serial	RS 232C (Sub-D9), 300 -115200 baud
Ethernet	10/100 Base T (RJ45)
USB	<ul style="list-style-type: none"> <li>• Device V1.1, USB B, 'Full speed' operating mode, 12 MBit/s <sup>1</sup></li> <li>• Host, USB-A</li> </ul>
Memory card	Slot for 1 SD/MC card <sup>1)</sup>
Control panel interface	RS 485 (Mini DIN 6-plug) for remote control panel

[Tab. 12] Data interfaces on the ALX 73x dispensing module.

1) Gen. 2: Not yet supported with firmware version 2.51

#### Signal interfaces

Interface	Details
Applicator interface	Optional (AI board): control signals for applicators
PLC interface	Sub-D15, optically insulated, optionally <sup>1</sup> via two 8-pin M12s (inputs/outputs separated) <i>Outputs</i> : 4x PNP (high side drive), 24 V, max. 500 mA/channel, total permissible output current: 1500 mA <i>Inputs</i> : 3x PNP/NPN, 24 V

[Tab. 13] Signal interfaces on the ALX 73x dispensing module.

1) Configuration option „full“

**External sensors**

Interface	Details
Label sensor	Transmission sensor; NPN/PNP (switchable), 24 V
Product sensor	NPN/PNP, 24 V
Loop sensor	
APSF sensor (rotary encoder)	One/two-phase , PNP/P-P, 24 V, max. 20 kHz
Material reserve sensor	PNP, 24 V

[Tab. 14] Interfaces for external sensors on the ALX 73x dispensing module (plugs are 4-pin M12).

**Electronic equipment**

Feature	Details
CPU	32 Bit CPU ARM926-EJ
RAM	128 MBytes
ROM	8 MBytes
Memory cards	1x SD
Control panel	5 keys; LCD graphical display with 128x32 pixels; typically two lines are displayed with 16 characters each

[Tab. 15] Electronic equipment for dispenser module ALX 73x.

# Product description

## OVERVIEW

### Designs of the ALX 73x

#### ALX 734/735

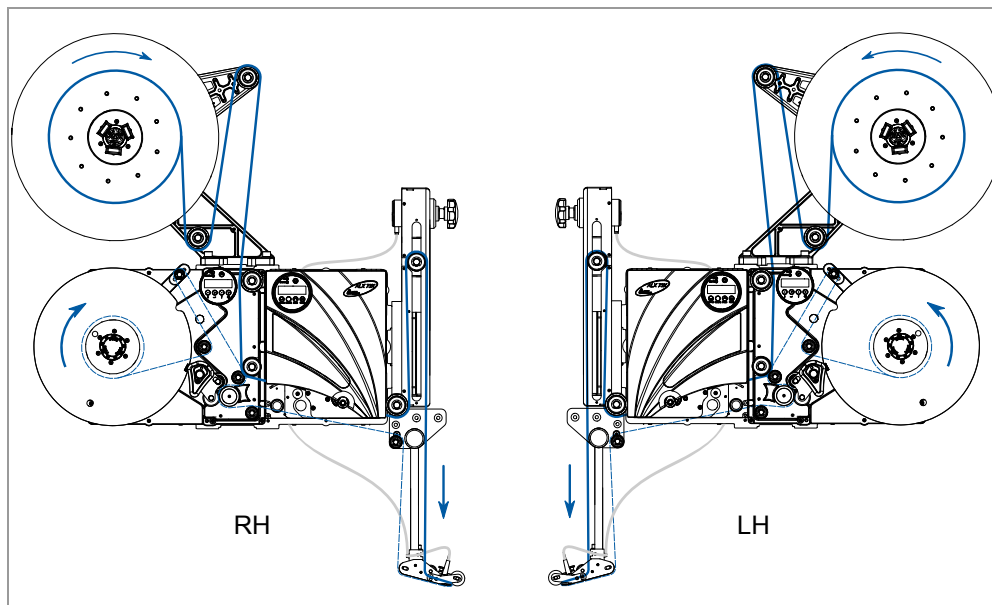
The ALX 73x is available in versions ALX 734, ALX 735 and ALX 736, which differ in the width of the printhead:

- ALX 734: 4" print width (106 mm)
- ALX 735: 5" print width (127 mm)
- ALX 736: 6" print width (160 mm)

#### ALX 73x RH/LH

Each machine of series ALX 73x is available as a right-hand (RH) or left-hand (LH) version [7]:

- ALX 73x RH: The label exits the machine on the *right* <sup>1</sup>.
- ALX 73x LH: The label exits the machine on the *left*.



[7] ALX 73x RH and LH.

1) As seen by the operator

## Configurations of the ALX 73x

The ALX 73x can be adjusted in many ways to meet customer requirements:

Feature	Adjustment
Direction in which products move	Selection of design: LH / RH
Assembly position of the machine	Horizontal / vertical (for labelling from above or from the side)
Machine fastening	Below / in the rear
Number of unwinders	1 / 2
Fastening of unwinders	Above (to the right / left) On the side (right / left)

[Tab. 16] Options for configuring the ALX 73x.

Operation of the ALX 73x is described in this manual based on a machine with the following configuration:

- RH
- Horizontal installation position for labelling from above
- 1 Unwinder top left

For additional configuration illustrations see section **Threading diagrams** on page 73.

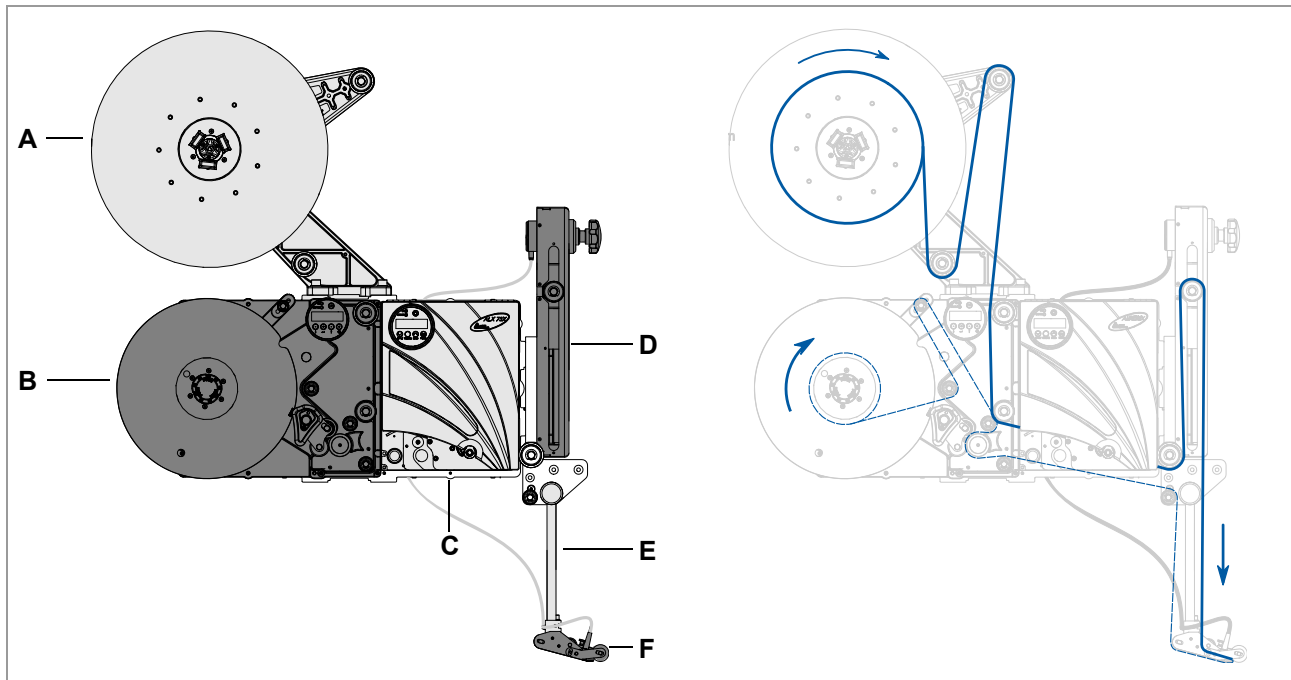
## Functionality

The main function of the ALX 73x is printing and dispensing self-adhesive labels. This function is performed by a printing [8C] and a dispensing [8B] module that will be referred to below by the shortened form printer and dispenser.

The printer and dispenser work largely independently of each other. The only information exchanged between the units relates to ready for operation status and error states that occur. These units have their own control unit, firmware and control panel. To be able to operate the machine, the two units must be set up separately from each other. In some cases the same settings will have to be made twice (for example entering the label length).

The labels are not dispensed immediately after printing. Instead they are buffered in a loop where they are kept under tension by the dancer unit [8D].





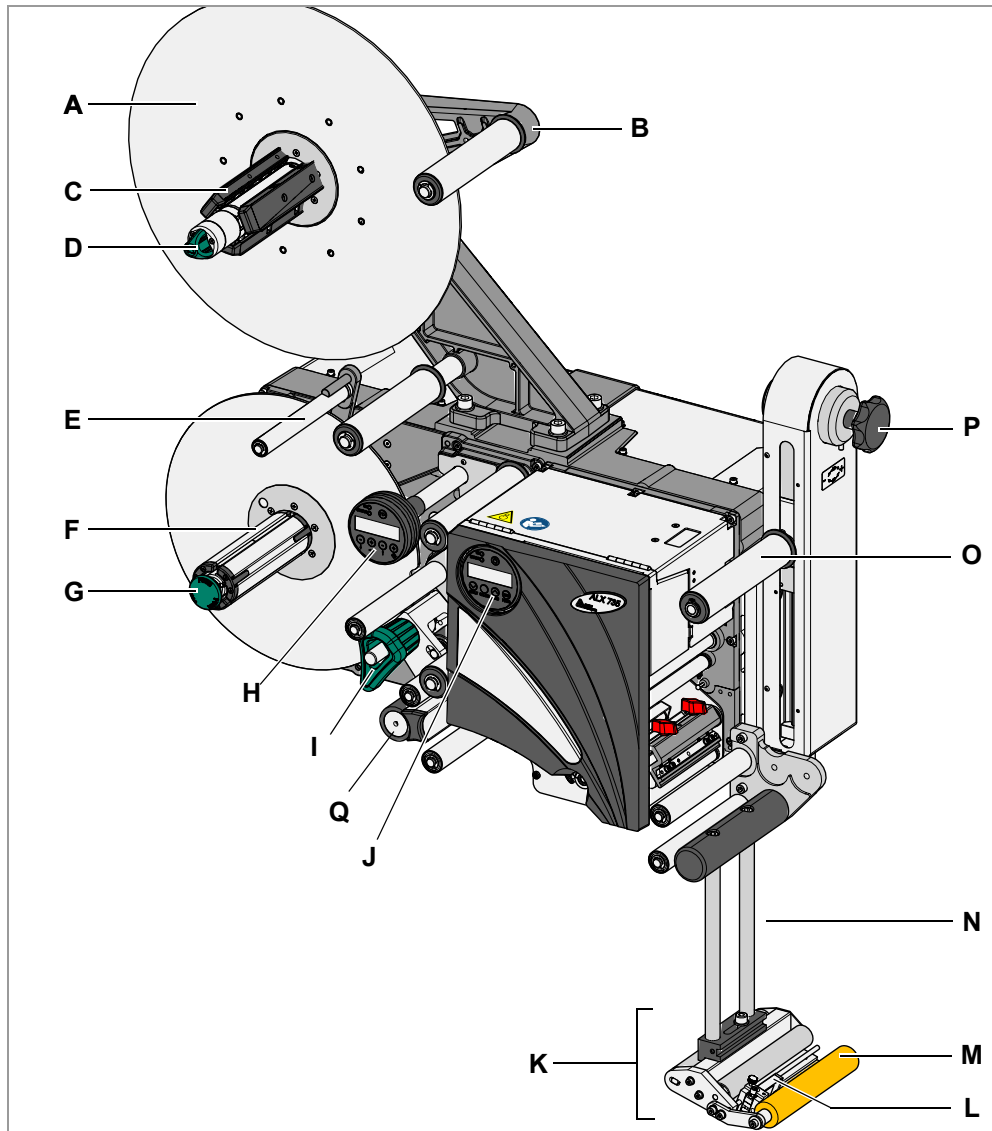
[8] Left: Functional elements of the ALX 73x. Right: Flow of material.

- A Unwinder
- B Dispenser (LMA)
- C Printer (PMA)
- D Dancer unit (DU)
- E Dispensing edge holder
- F Dispensing edge (optional)

Sequence of print dispensing:

- A print job is transferred to the printer (via database interface or memory card).
- The printer starts. When it does the dancer lever of the dancer unit moves up. The printer stops as soon as the dancer lever has reached approximately the position shown here [8 right].
- The dispenser dispenses a label as soon as there are enough printed labels in the buffer loop and a start signal is received. This draws the dancer lever down, which in turn causes the printer to print as long as there are still more labels to print until the dancer lever has reached the upper end position.

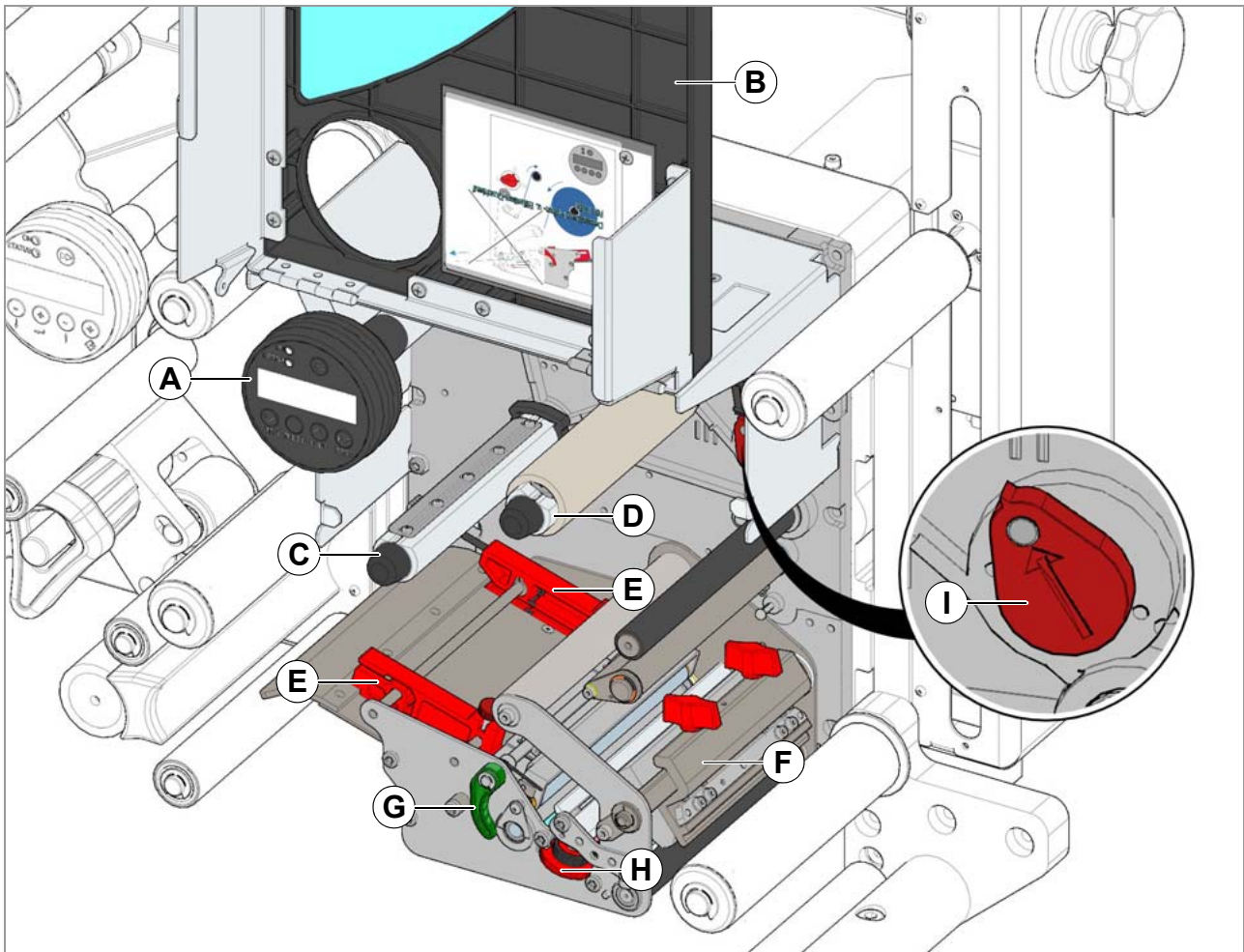
## Operating components



[9] Operating components of the ALX 73x RH.

- A** Unwinder  
The unwinding mandrel receives the material roll.
- B** Dancer lever  
Holds the label material evenly under tension. Brakes the rotation of the material roll if the material tension drops.
- C** Core diameter adapter  
To adjust the diameter of the dispenser mandrel to the core diameter of the label roll.
- D** Adjusting knob  
Turn clockwise to fasten the label roll in place on the dispenser.
- E** Dancer lever  
Controls the rewinding speed.
- F** Rewinder  
Winds up the empty carrier material.

- G** Unlocking button  
Pressing the button reduces the diameter of the rewinding core. This makes it possible to remove wound carrier material easily.
- H** Dispenser control panel (dispensing module "LMA")  
To enter commands on the dispensing section of the machine and display operating states and error messages.
- I** Pressure mechanism  
Presses the pressure roller against the drive roller. Prevents the carrier material from slipping. Is automatically unlocked if the carrier material is drawn around the drive roller.
- J** Printer control panel (print module "PMA")  
To enter commands on the printing section of the machine and display operating states and error messages.
- K** Dispensing edge  
Shown here: fixed L-shape dispensing edge. The following options are available: swivelling L-shape dispensing edge, spring-loaded L-shape dispensing edge, pneumatic L-shape dispensing edge
- L** Label sensor  
Stops the label feed after dispensing a label.
- M** Pressure roller  
Presses the label after dispensing onto the product.
- N** Dispensing edge holder  
Holds L-shape dispensing edges in position. Not required for V-shape dispensing edge.
- O** Dancer lever  
Holds the buffer loop under tension.
- P** Adjusting knob  
For setting the spring tension of the dancer lever.
- Q** Feed roller





[10] Operating components of the printer in a ALX 73x RH.

- A** Printer control panel (print module „PMA“)  
To enter commands on the printing section of the machine and display operating states and error messages.
- B** Front cover  
Held open by gas pressure spring.
- C** Ribbon unwinding mandrel  
Holds the ribbon roll.
- D** Ribbon winding mandrel  
Winds up the used ribbon.
- E** Material guides  
The material end sensor is located inside the material guide.
- F** Printhead
- G** Pressure lever
- H** Adjustment wheel for label sensor
- I** Adjustment knob for printhead pressure

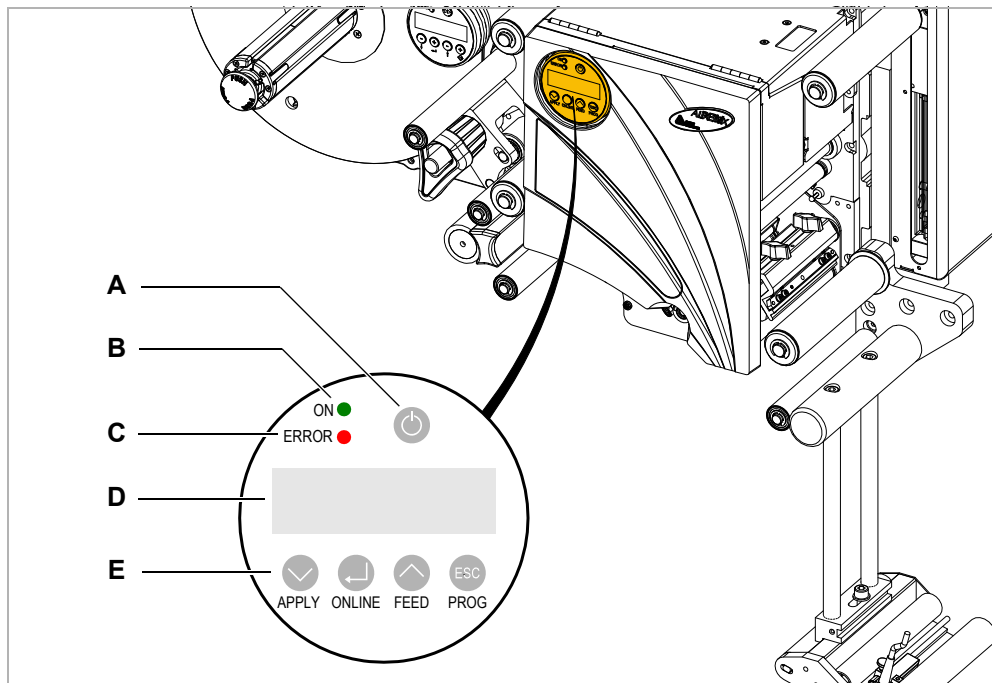
## Control panels

### Control panel language

Different languages are available for texts that appear on screen. Instructions for selecting the language:

- Dispenser: see **Setting parameters**  auf Seite 47.
- Printer: see **Setting parameters**  auf Seite 54.

### Printer control panel



[11] Printer control panel.

#### A On/Off switch

Switches the printer on and off. To do this, press this button for longer than 2 seconds. Requirement: The mains power switch is turned on (position "I").


#### B Operating LED

Lights up green when the printer is turned on.

#### C Error LED

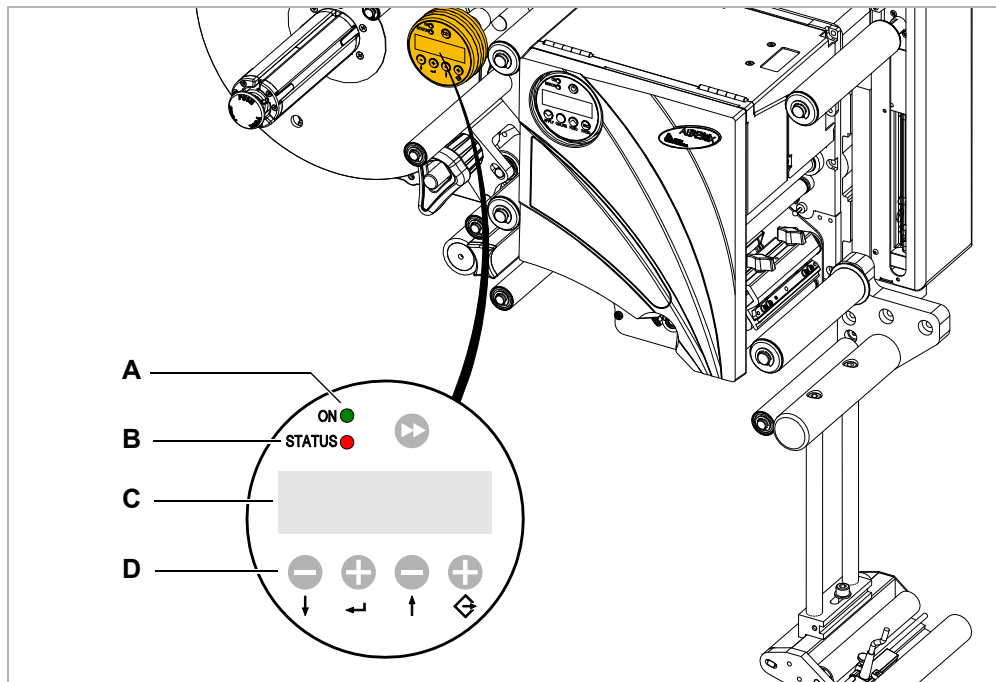
Lights up red when an error has occurred.

#### D Screen

Display of operating states, parameters, setting values and error messages. The displays depend on the operating state of the printer. They are described in section **Printer operating modes**  on page 49.

#### E Keys

The functions of the keys depend on the operating state of the printer. They are described in section **Printer operating modes**  on page 49.

**Dispenser control panel**

[12] Dispenser control panel.

**A Operating LED**

Lights up green when the dispenser is turned on.

**B Error LED**

Lights up red when an error has occurred.

**C Screen**

Display of operating states, parameters, setting values and error messages. The displays depend on the operating state of the dispenser. They are described in section **Operating modes of the dispenser** on page 43.

**D Keys**

The functions of the keys depend on the operating state of the dispenser. They are described in section **Operating modes of the dispenser** on page 43.

## Connections



### WARNING!

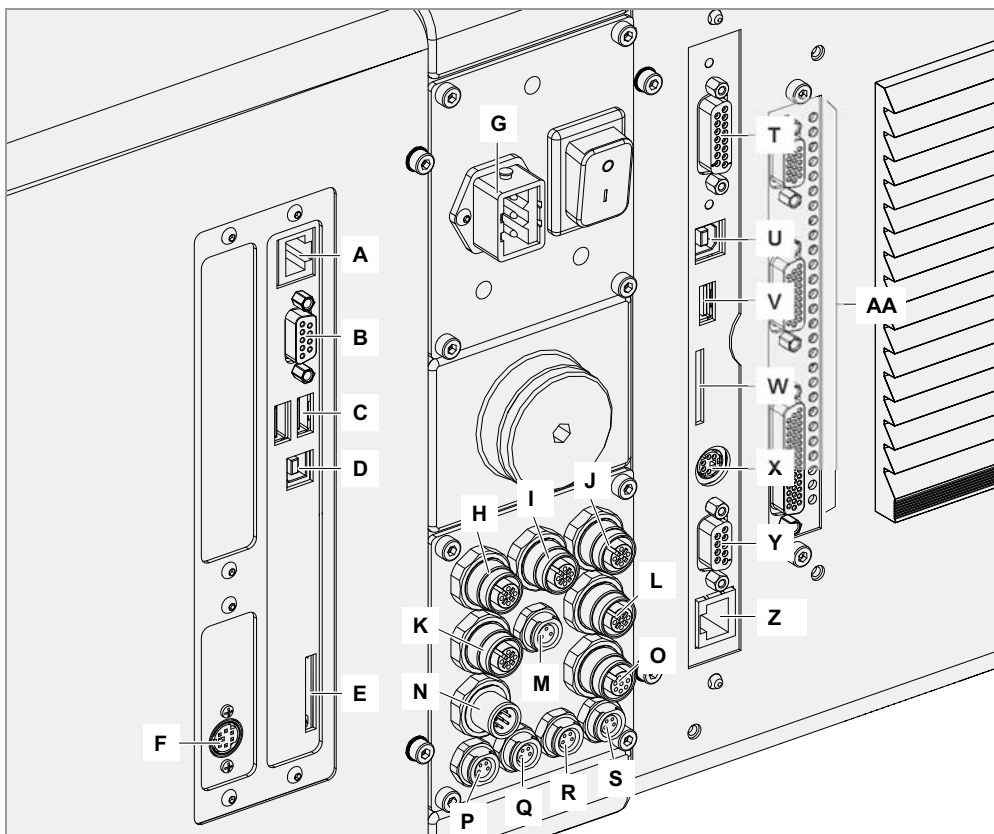
Danger of electrocution.

→ Only connect the printer to devices that fulfil the SELV (safety extra-low voltage) circuit requirements in accordance with EN 60950.

### CAUTION!

Danger of damage to the machine due to faulty accessories.

→ Only connect original accessories.



[13] Connections on an ALX 73x RH. Left: printer connections, right: dispenser connections.

- A** (Printer) *network connection* (Ethernet 10/100); used to transfer print jobs from a host (for example a PC); read service data; transfer firmware; operation via web server
- B** (Printer) *Serial interface* (RS232); used to transfer print jobs from a host (for example a PC); read service data; transfer firmware
- C** (Printer) *USB device interfaces* (2x); used to connect devices, for example keyboard or scanner
- D** (Printer) *USB interface type A* (host); used to transfer print jobs from a host (for example a PC); read service data; transfer firmware
- E** (Printer) *card slot for SD cards*; used to store/load print jobs, service data or firmware
- F** (Printer) connection for a *remote control panel* (see [External control panels](#) on page 37)
- G** Connection to the *mains power supply*
- H** *Label sensor*
- I** *Product (start) sensor* (available as accessory)
- J** *Rotary encoder* (available as accessory); used for operation with automatic speed adaptation
- K** *Alternative label sensor* (see [Capacitive label sensor](#) on page 40)

- L** *Position sensor* of the linear dancer lever
- M** *OD<sup>1)</sup> sensor* for external OD monitoring (see **Roll diameter sensor** □ on page 39)
- N** (Dispenser) *signal inputs* (connection only to ALX 73x in the "complete") design; used to exchange signals with other machines or control an applicator
- O** (Dispenser) *signal outputs* (connection only to ALX 73x in the "complete") design
- P** *OD sensor 1* (for internal OD monitoring on dispenser 1, see **Cable kit for internal roll diameter monitoring** □ on page 39)
- Q** *OD sensor 1*
- R** *OD<sup>1)</sup> sensor 2* (for internal OD monitoring on dispenser 2)
- S** *OD sensor 2*
- T** (Dispenser) *PLC signal interface/applicator interface* (switchable); used to exchange signals with other machines or control an applicator
- U** (Dispenser) *USB interface type B* (host); used to transfer print jobs from a host (for example a PC); read service data; transfer firmware (not supported by the current firmware version)
- V** (Dispenser) *USB interface type A* (device); used to connect an USB stick; used to store/load service data or firmware
- W** (Dispenser) *card slot for SD cards*; used to store/load service data or firmware (not supported by the current firmware version)
- X** (Dispenser) connection for *remote control panel* (see **External control panels** □ on page 37)
- Y** (Dispenser) *Serial interface* (RS 232); used to read service data; transfer firmware
- Z** (Dispenser) *network connection* (Ethernet 10/100); used to read service data; transfer firmware; operate via web server
- AA** (Dispenser) *Applicator interface* (Option); used to exchange signals with other machines or to control an applicator

---

1) OD = outer roll diameter



## OPTIONS

### External control panels

In addition to the permanently installed control panel, external control panels can also be connected.

External control panels are advantageous if the installed control panels are difficult to access due to the installation position of the machine.



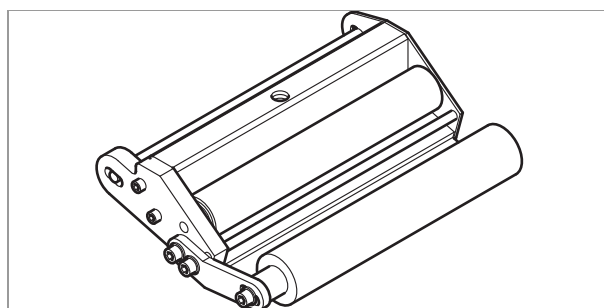
[14] External dispenser control panel

### Fixed dispensing edge

The dispensing edge is rigidly connected with the holding bars.

The vertical position can be adjusted by raising or lowering the entire machine.

To adjust the inclination, rotate the holding bars (for further details see the Service manual).

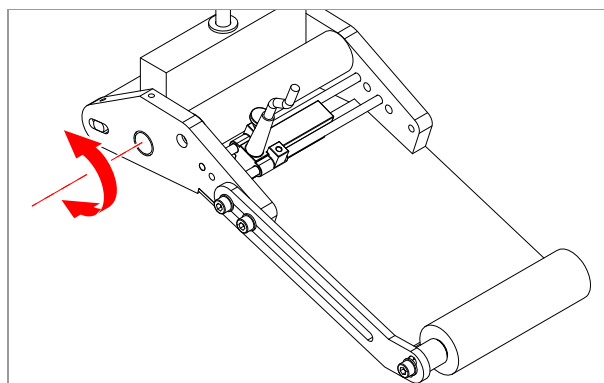


[15] Standard dispensing edge

### Swivelling dispensing edge

The vertical position of the dispensing edge is adjustable.

The machine does not need to be moved to adjust the dispensing edge and the machine suspension does not need to be loosened.

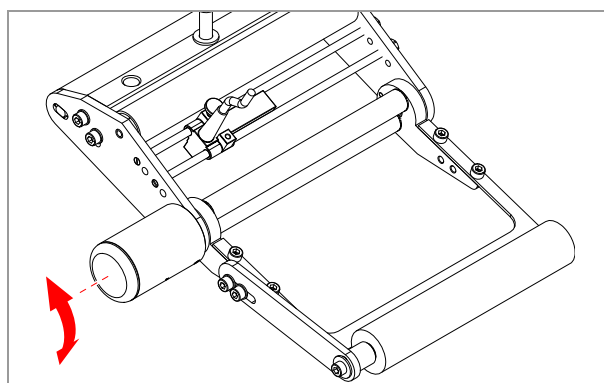


[16] Swivelling dispensing edge

### Spring-loaded dispensing edge

The dispensing edge can be rotated in its bearing. A torsion spring in the dispensing head presses the dispensing edge down onto the surface of the product.

This makes it possible to compensate for differences in height between products or on the surface of the product.

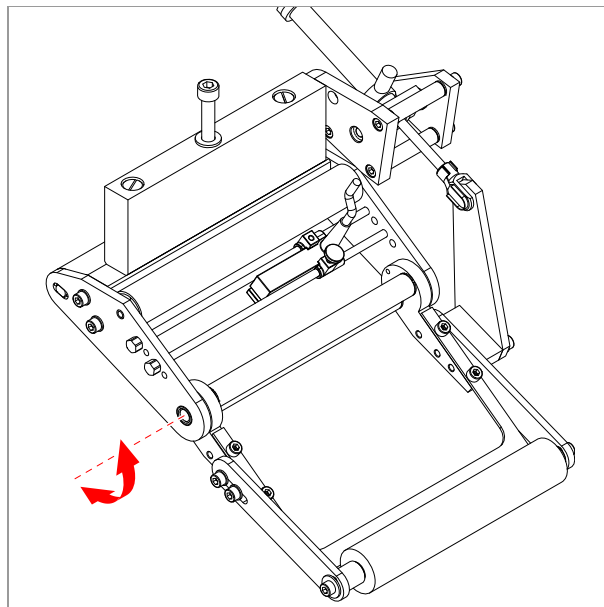


[17] Spring-loaded dispensing edge

## Pneumatic dispensing edge

The dispensing edge can be rotated in the dispensing head. Compressed air presses the dispensing edge onto the surface of the product.

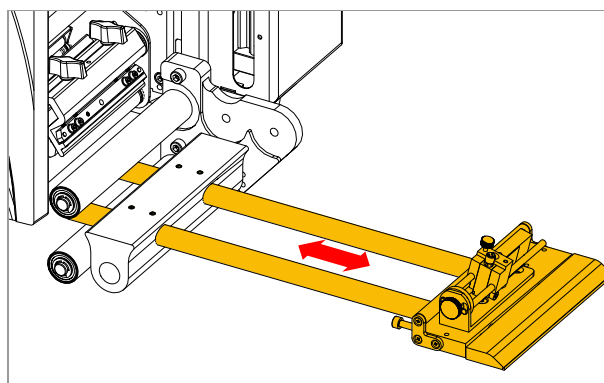
This makes it possible to compensate for differences in height between products or on the surface of the product.



[18] Pneumatic dispensing edge

## V-shape dispensing edge

The length-adjustable V-shape dispensing edge [19] offers an additional opportunity to adapt the machine to the application.

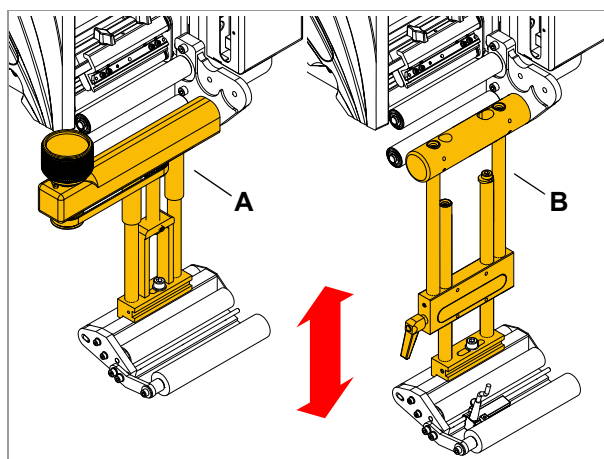


[19] V-shape dispensing edge.

## Adjustable dispensing edge holders

L-shape dispensing edges can be mounted with the fixed (standard) dispensing edge holder, or with one of the two optionally available adjustable holders.

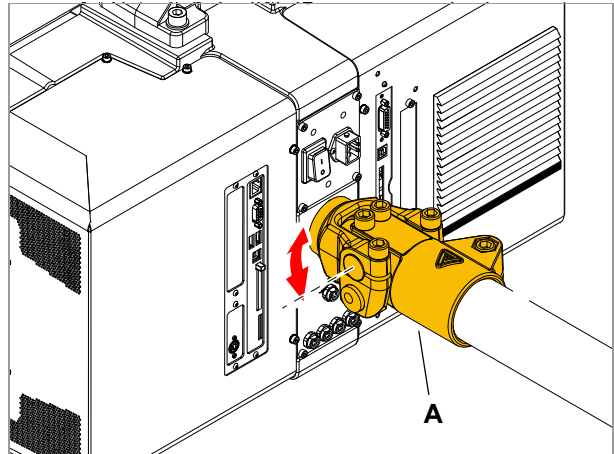
- The finely adjustable dispensing edge holder [20A] can be adjusted by means of an adjusting spindle in steps of 0.2 mm.
- The „normally“ adjustable dispensing edge holder [20B] offers a larger setting range, which can be further extended by installing longer rods into the holder.



[20] Adjustable dispensing edge holder.

## Adjustable head joint

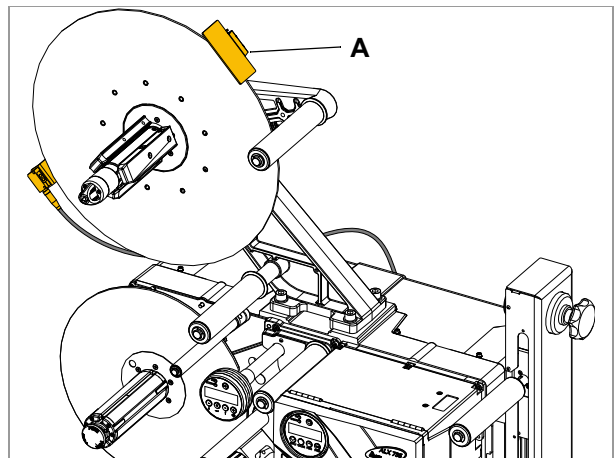
Using the adjustable head joint [21A], just one person can tilt the label dispenser  $\pm 4^\circ$  for fine dosing.



[21] Adjustable head joint (A)

## Roll diameter sensor

The roll diameter sensor (OD sensor) [22A] generates a warning if a specific, adjustable Outer Diameter of the roll is exceeded.



[22] Roll diameter sensor (A)

## Cable kit for internal roll diameter monitoring

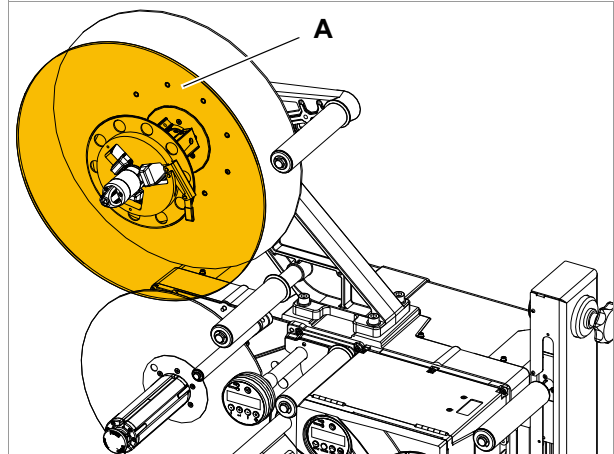
The sensors integrated into the dispenser are connected to the ALX 73x controller with these cables [23]. This makes it possible to use internal roll diameter monitoring. 2 cable kits are required for 2 dispensers.



[23] Cable kit for internal OD monitoring

## Additional material guiding disc

The additional material guiding disc [24A] improves side guiding of the material roll. This option is especially recommended for processing very narrow label material (< 30 mm in width).

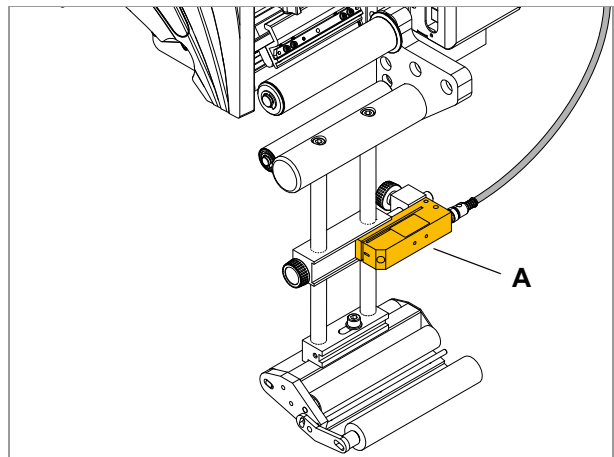


[24] Additional material guiding disc (A)

## Capacitive label sensor

Optional sensor, required for processing transparent labels [25A]. The sensor is mounted on the rods of the dispensing edge holder.

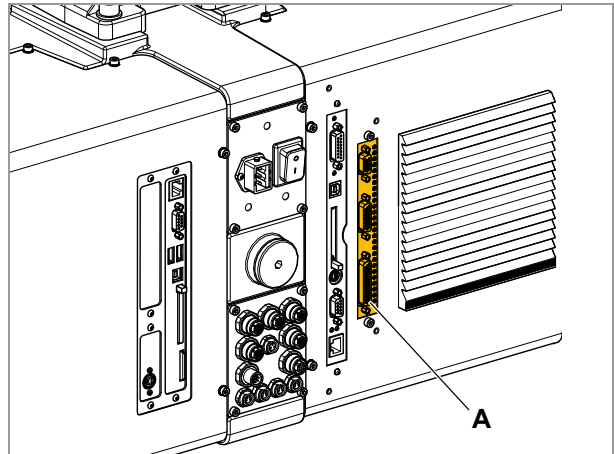
The sensor *cannot* be mounted on the adjustable dispensing edge holder (option).



[25] Capacitive label sensor (A).

## Applicator interface

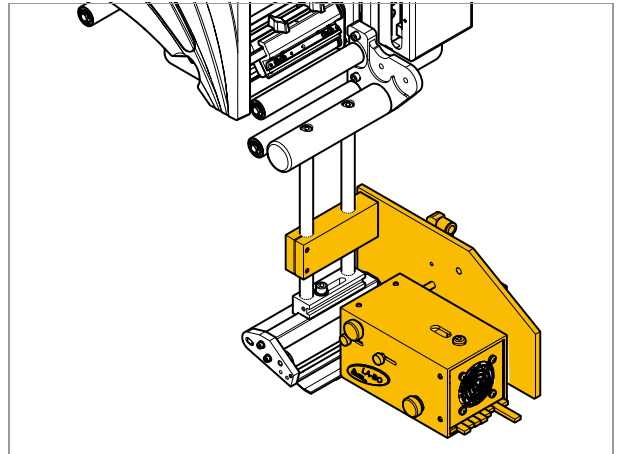
Additional board [26A]; makes it possible to control almost all applicator types.



[26] Installed applicator interface (A) on an ALX 73x RH.

## Blow-on applicator LA-BO

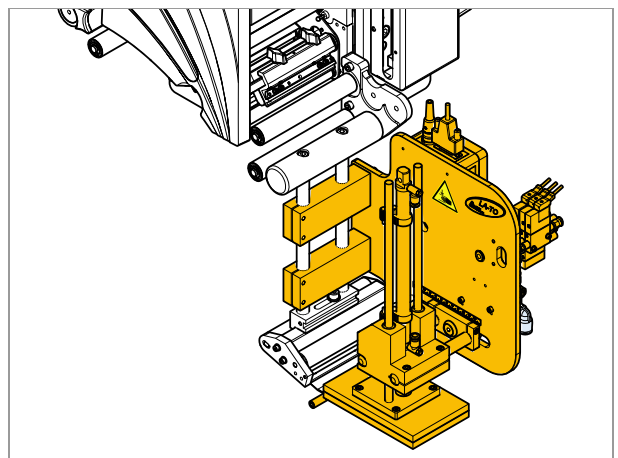
The LA-BO applies labels to products without touching them. It suits especially well for labelling delicate products like fruits or vegetables.



[27] Applicator LA-BO.

## Tamp-on applicator LA-TO

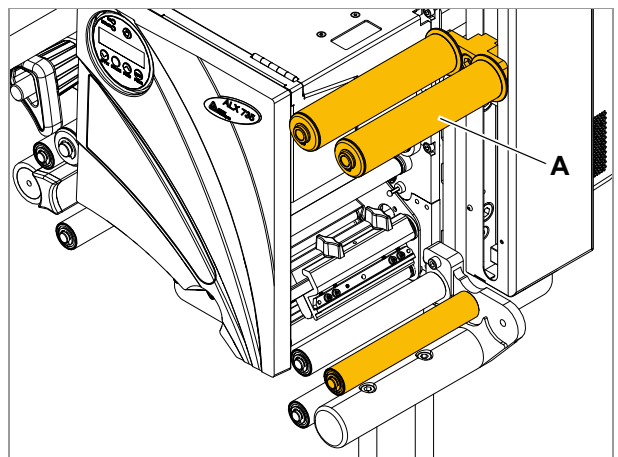
The LA-TO presses labels onto products by means of a movable pressure plate, which is driven pneumatically. Pressure plates are available in different sizes.



[28] Applicator LA-TO.

## Double deflection roller

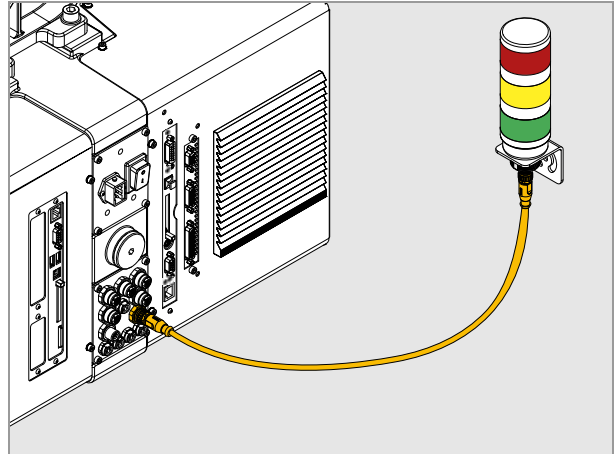
The double deflection roller [29A] at the linear dancer lever increases the loop capacity. This option recommends especially for very long labels.



[29] Double deflection roller (A) at the linear dancer lever.

## Signal beacon

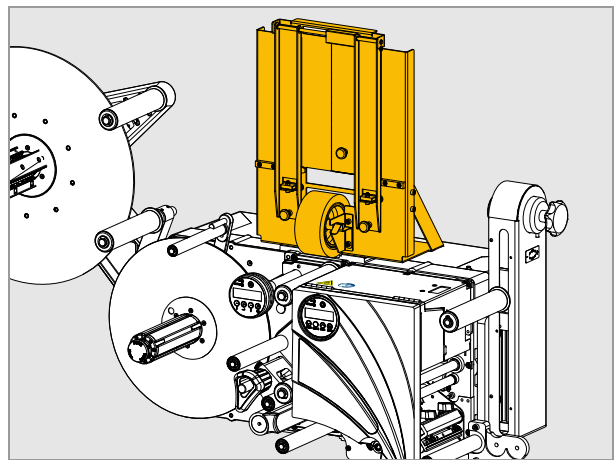
The signal beacon signals error (red), warning (yellow) or ready (green) status. Ready to use connection cables for different interfaces are also available..



[30] Signal beacon.

## Splice table

With the splice table option, the end of the preceding material roll can be taped to the beginning of the new roll. Thus, the material doesn't have to be fed through the whole machine for each new material roll, what reduces the downtimes for material change.



[31] ALX 73x with splice table.

## OPERATING MODES OF THE DISPENSER

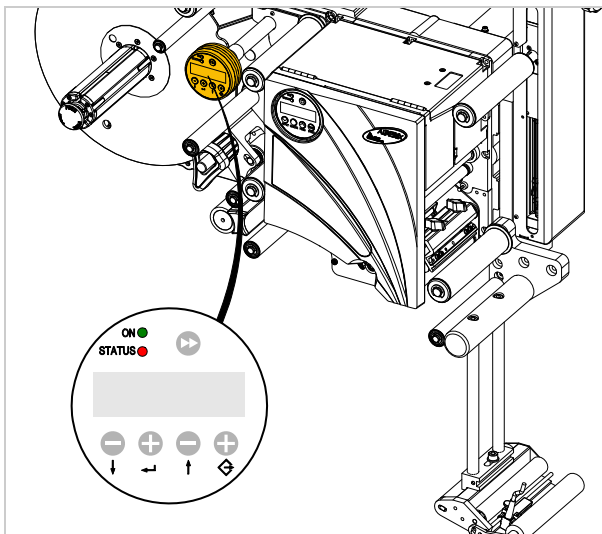
### Overview

Operating modes of the dispenser:

- Online mode
  - dispensing mode
  - Active operating mode after switching on <sup>1</sup>
  - Label counter screen *or*
  - Display/setting of dispensing speed and start delay

- Offline mode

Settings in parameter menu

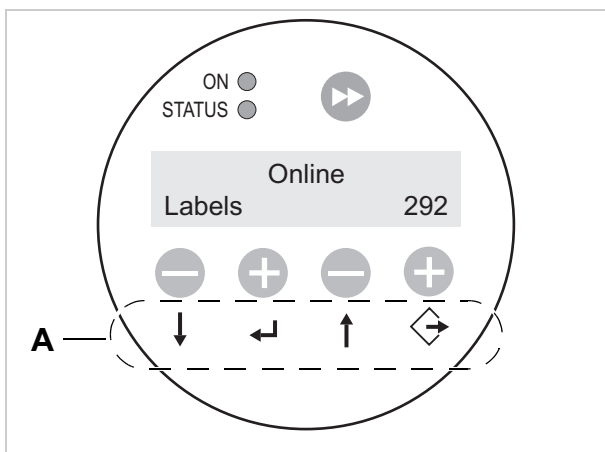


[32] Dispenser control panel on the ALX 73x.

---

1) Requirement: Factory setting or MACHINE SETUP > Turn-on mode = "Online"

## Online mode



[33] Dispenser control panel in online mode (292 labels dispensed)

A Meaning of keys in online mode

### Activate online mode

Normally <sup>1</sup> activated automatically after switching on.

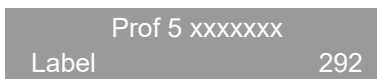
Activate from offline mode:

→ Press the key 2x.

Screen:



Or:



(Product profile "xxxxxxx" (memory slot 5) is activated).

For more detailed information see chapter [Using product profiles \(dispenser\)](#) on page 100.

### Stop/continue label output

Stop label output:

→ Press the key.

The dispenser stops.

Screen:



a) Second = running text


or (in applicator mode)



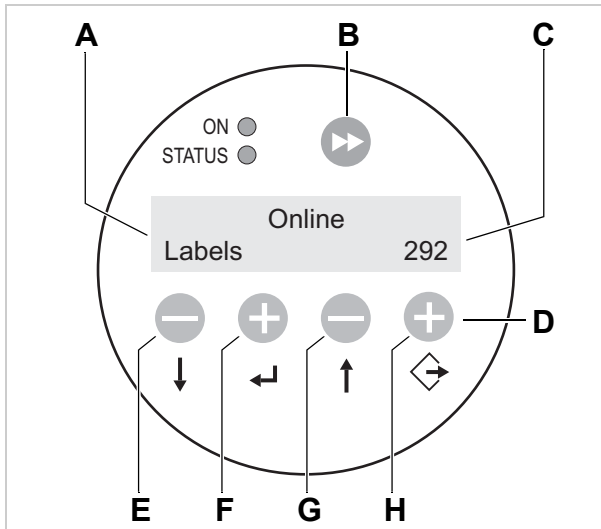
1) Requirement: Factory setting or MACHINE SETUP > Turn-on mode = „Online“



Continue label output:

1. (applicator mode) remove label from applicator.
2. Press the  key.

### Online settings



[34] Dispenser control panel in the online settings mode.

- A Dispensing speed display (here: 12,2 m/min constant)
- B Dispense label key
- C Start delay display (here: 0 mm)
- D Meaning of keys for online settings
- E Reduce dispensing speed key
- F Increase dispensing speed key
- G Reduce start delay key
- H Increase start delay key

The machine is in dispensing mode.

Switch to online settings:

→ Press the  key.

Screen shows dispensing speed [34A] and start delay [34C].

The key assignments as they are represented *on the keys* apply.

Both settings can be increased or reduced during dispensing mode ("+" key) ("-" key) [34D].

#### Dispensing speed:

- Setting range: [5.0...50.0] m/min
- "Fixed" display: The dispensing speed is constant
- "Var" display: The dispensing speed automatically follows the speed of the conveyor mechanism (automatic speed adaptation)

#### Start delay:

- Setting range: [0.0...999.9] mm
- The start delay is the distance between the product sensor and the dispensing edge.

Changing back to online mode:

→ Press the  +  keys.

**Changing the counter state**

→ Set the counter state with MACHINE SETUP > Dispense counter.

**Count labels backwards**

To count dispensed labels backwards from a starting value to zero:

1. Set LABEL SETUP > Stop count. mode to "On".
2. Define the starting value with LABEL SETUP > Label stop quan..

**Start dispensing cycle**

To start dispensing of a single label manually:

→ Press the  key.

**To start the dispenser in offline mode**

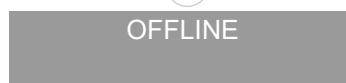
To start the dispenser in offline mode the next time it is turned on:

→ Set MACHINE SETUP > Turn-on mode to "Offline".

**Offline mode****Activate offline mode**

Activate from online mode:

→ Press the  key 2x.



→ Press the  key.



LABEL SETUP is the first menu in the parameter menu.

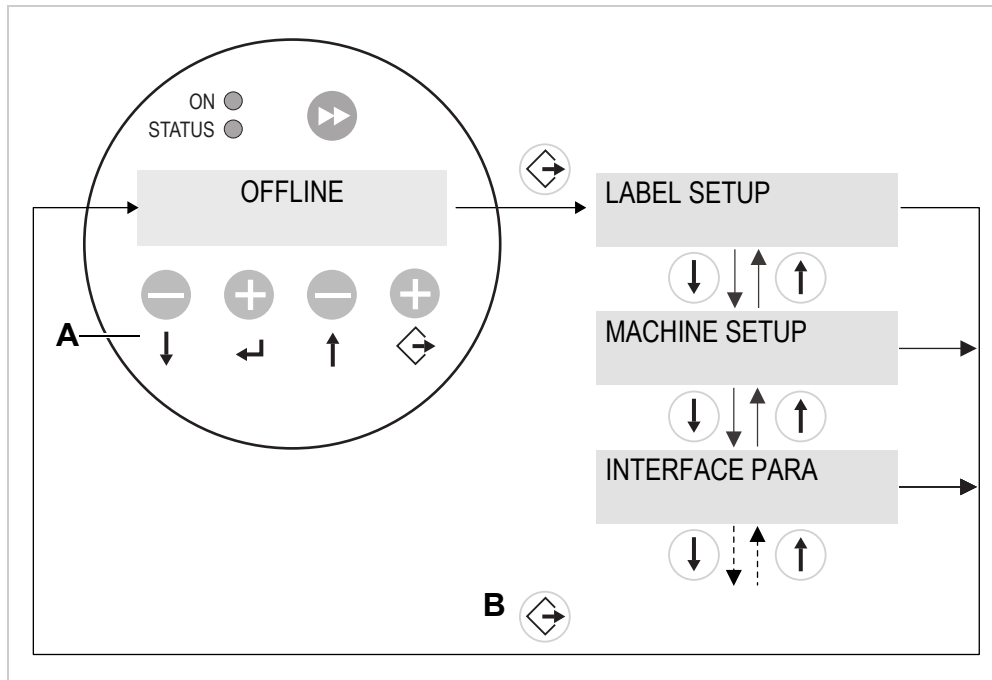
In offline mode the key assignments as they are represented *under the keys* apply.

**Opening the parameter menu**

In the parameter menu the user has access to a number of menus in which various parameters can be called in a defined order.

The dispenser can be set so that some menus and/or parameters are not visible.

Figure [35] shows the key functions for switching between different menus and for exiting the parameter menu.

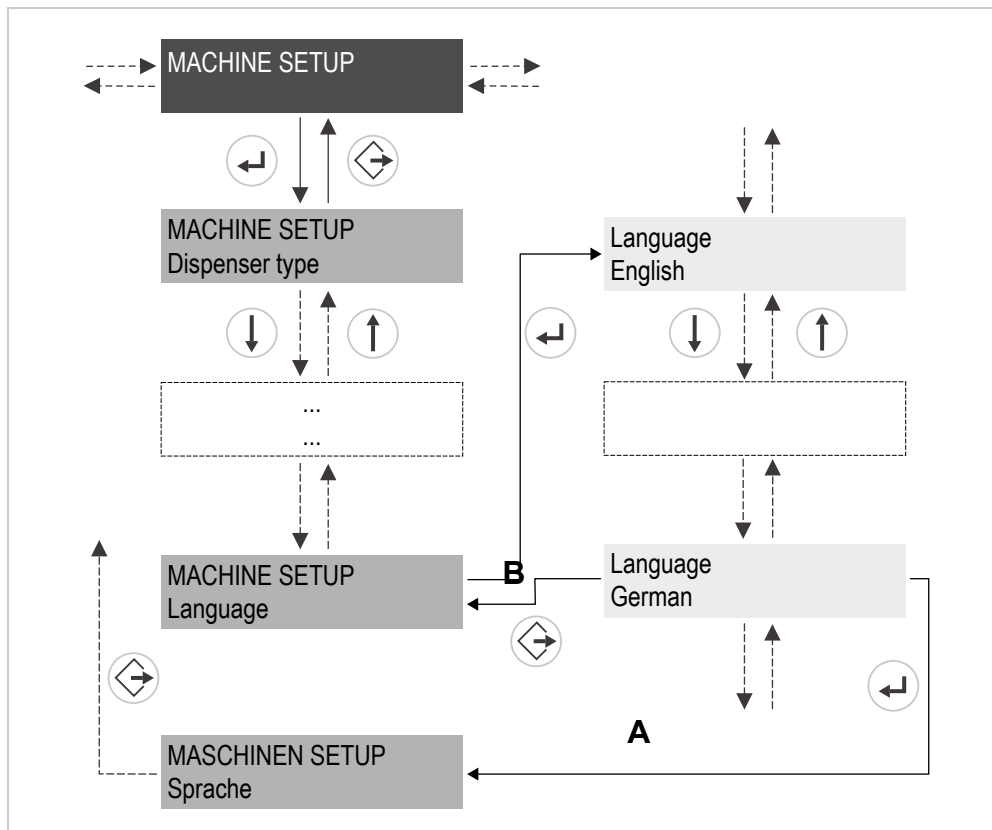


[35] Menu selection and key functions in the parameter menu.

A Meaning of keys in offline mode

B Menus

### Setting parameters



[36] Key function when setting the parameter MACHINE SETUP > Sprache.

A Key for "Accept change"

B Key for "Reject change"

Each menu contains parameters that can be used to make settings on the machine control unit.


Fig. [36] shows the MACHINE SETUP > Sprache parameter as an example of the key functions for changing settings.

**Start dispensing cycle**

→ Press the  key.

A single label is dispensed.

**Measure label length**

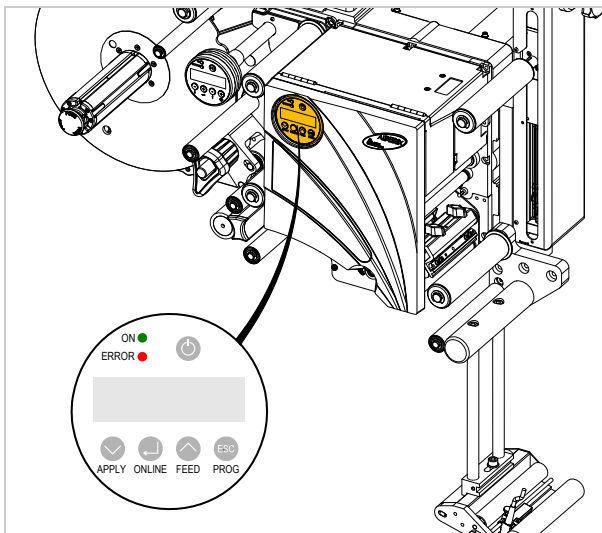
→ Press and hold the  key for longer than 2 seconds.

The label material is fed 2 label lengths forward. At the same time the label length is measured and appears in the display.

## PRINTER OPERATING MODES

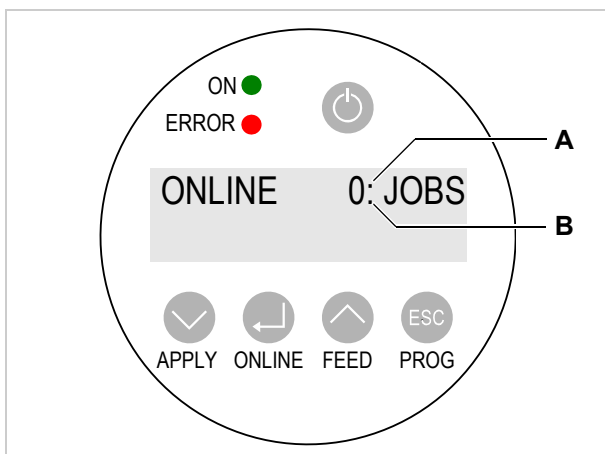
### Overview

- Online mode
  - Print jobs are received and processed immediately
  - Active operating mode after switching on
  - Print contrast setting
- Offline mode
  - Print jobs are received but are not processed
  - Access to the parameter menu
- Standalone mode
  - Print mode without data line
  - Print job on memory card



[37] Control panel at the ALX 73x.

## Online mode



[38] Printer control panel at the ALX 73x in online mode.

- A Interpreter activity
- B Data transfer

**Activate online mode**

Activate from offline mode:

→ Press the ONLINE key.

Screen:

ONLINE 0 JOBS

(There are no pending print jobs for processing).

**Data transfer and interpreter activity**

ONLINE 0: JOBS

Screen showing *data transfer*:

A *data transfer* to the printer that is currently in progress is indicated in the display by a dot on the right below the number of jobs loaded [38B].

Screen showing *interpreter activity*:

An additional dot above the first one at the vertical midpoint of the line [38A] indicates activity of the interpreter:

- *No dot*: No data to interpret.
- *Dot*: The interpreter is working (data still present in the spooler)
- *Flashing dot*: The interpreter is waiting for additional data to be able to complete the command (no data in the spooler).

**Screen showing the progress of printing**

Screen during printing:

- Number of received print jobs (13)
- Number of remaining labels to be printed in the current job (25)

```
ONLINE  13 JOBS
Restcount: 25
```

```
ONLINE  13 JOBS
Restcount: Endless
```

➡ If a printer job has been specified as *endless*, i.e., there is no limit to the number of labels to be printed, the remainder for this job will also be endless.

**Stop/continue print process**

Screen during printing:

```
ONLINE   X JOBS
Restcount: yy
```

To stop the print process:

➔ Press the ONLINE key.

The label currently being printed is completed. Screen:

```
ONLINE   X JOBS
Stopped : yy a
```

a) "Stopped: yy" alternates with "Press Feed".

To continue the print process:

➔ Press the FEED key.

```
ONLINE   X JOBS
Restcount: yy
```

**Adjust the print contrast****CAUTION!**

The print contrast parameter directly affects the service life of the printhead. The higher the setting of the print contrast, the shorter the service life of the printhead. This applies especially to settings over 100%.

➔ Always select the lowest setting that will still produce acceptable printing results.

```
ONLINE   X JOBS
Restcount: yy
```

➔ Press the PROG key.

```
Print contrast
xxx%
```

➔ Set the print contrast with the FEED / APPLY keys.

➔ Accept the setting with the ONLINE key.

## Offline mode

### Activate offline mode

Normally <sup>1</sup> activated automatically after switching on.

To activate from online mode (when the print job is stopped):

→ Press the ONLINE key.

OFFLINE 0 JOBS

(There are no pending print jobs for processing).

OFFLINE X JOBS  
Stopped : yy

(The operator has switched from stopped online mode to offline mode)

### Material feed forwards/backwards

Material feed up to the start of the next label:

→ Press the FEED key.

OFFLINE X JOBS  
feeding...

Slow material and ribbon feed:

→ Press and hold ONLINE + FEED keys.

OFFLINE X JOBS  
feeding...

Slow material transport backwards:

→ Press and hold ONLINE + APPLY keys.

OFFLINE X JOBS  
feeding...

---

1) Requirement: factory setting or SYSTEM PARAMETERS > Turn-on mode = "Offline"

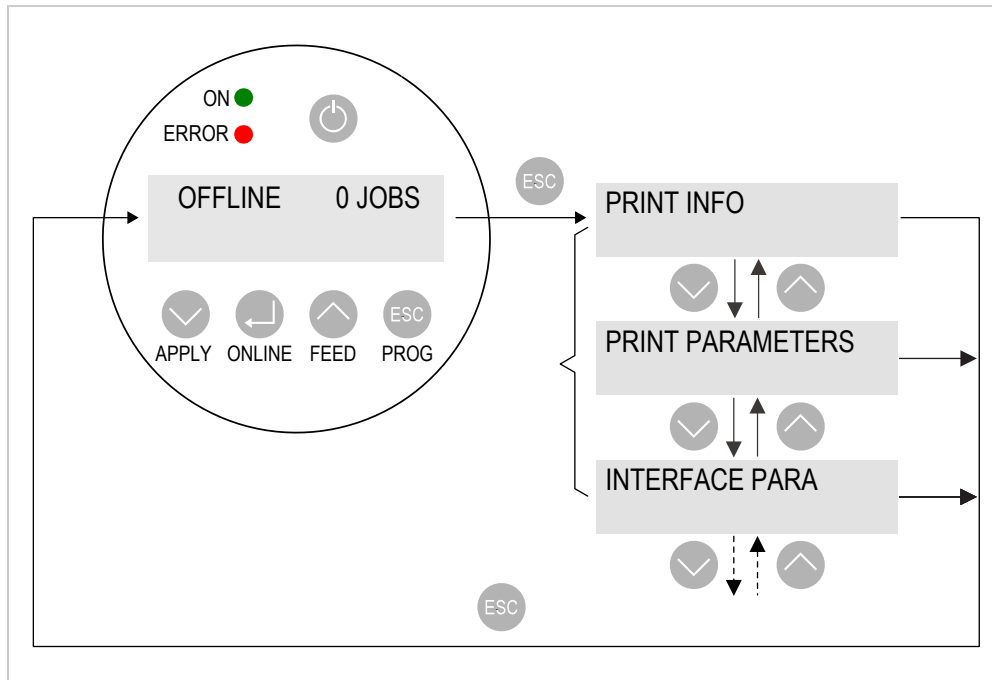


### Opening the parameter menu

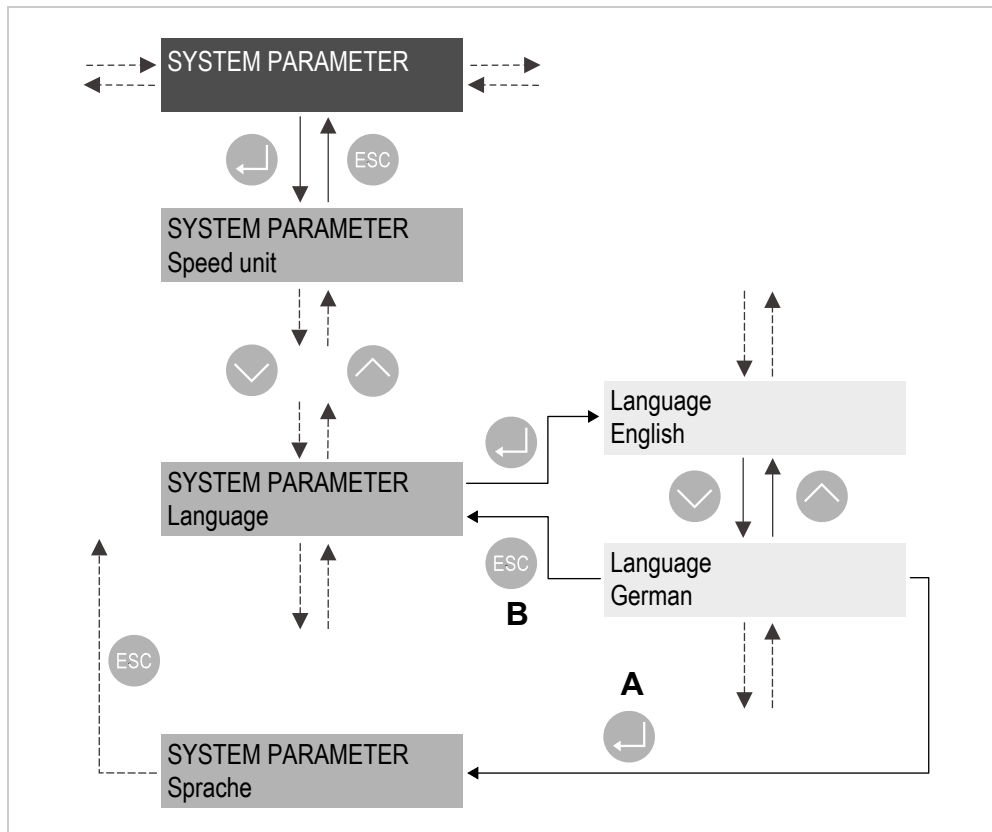
In the parameter menu the user has access to a number of menus in which various parameters can be called in a defined order.

The dispenser can be set so that some menus and/or parameters are not visible.

Figure [39] shows the key functions for switching between different menus and for exiting the parameter menu.



[39] Menu selection and key functions in the printer parameter menu.

**Setting parameters**

[40] Key function when setting the SYSTEM PARAMETER > Language parameter.

- A** Key for "Accept change"
- B** Key for "Reject change"

Each menu contains parameters that can be used to make settings on the machine control unit.

Fig. [40] shows the SYSTEM PARAMETER > Language parameter as an example of the key functions for changing settings.

**Dot check for printhead**

The printhead dot check is used to detect faulty dots on the printhead.

**CAUTION!**

Danger of damaging the printhead.

→ Do not switch off the machine under any circumstances during the dot check!

→ Press the APPLY + FEED keys.

OFFLINE X JOBS  
Head dot test

## Standalone mode

In standalone mode, print jobs are not transferred via data cable but are instead stored on a memory card. You can access them there from the printer control panel or using a connected keyboard.

### Activate standalone mode

1. Switch off the machine.
2. Save relevant print jobs in the \Formats directory on the memory card.

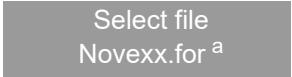
■► Files with print jobs must have the ending \*.for.

3. Insert the memory card in the printer's card slot.
4. Switch on the machine.

Initial operating mode: online or offline.

5. Press the ONLINE + PROG keys.

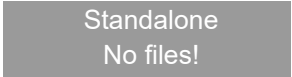
Screen:



Select file  
Novexx.for<sup>a</sup>

- a) Filename of the print job. If there are several print jobs: filename of the first print job in alphabetical order.

Screen if no file was found:

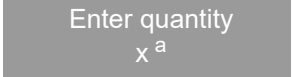


Standalone  
No files!

### Starting a print job

1. Activate standalone mode as described above.
2. If there are several print jobs: Press the FEED / APPLY keys until the required print job appears.
3. Press the ONLINE key to confirm the selection.

Screen:



Enter quantity  
x<sup>a</sup>

- a) Assignment for quantity (in this case x) is included in the print job.

■► Depending on the print job, the user may be prompted for additional entries.

4. Press the ONLINE key to confirm the number or the Esc key to delete the number.
5. Proceed in the following manner for each required digit:
  - Press the FEED / APPLY keys to select a number from 0 to 9.
  - Press the ONLINE key to move to the next digit.
6. Press the ONLINE key twice to confirm the selection.

The print job is now processed.

7. You can also optionally press the ONLINE + PROG keys to switch to online mode.

## DISPENSER PARAMETER MENU

### Overview of parameter menu

LABEL SETUP	MACHINE SETUP	(continued)	INTERFACE PARA	(continued)
Load prod.profil	Dispenser type	Label sens. type	>EASYPLUGINTERPR	MAC Address
Gap detect. mode	Store prod.prof.	Startsen. In.Type	Interface	DHCP host name
Dispense speed	Del. prod.profil	Start disp. mode	Dispenser ID no.	FTP server
Slew speed	Dispense counter	Start error stop	Spooler size	FTP Password
Label pitch	Disp. Cnt. Reset	On inhibit enter	Interface delay	WEB server
Lab. stop offset	Factory settings	On inhibit leave		WEB display refr
Start offset	Custom defaults	Turn-on mode	>COM1 PORT	WEB admin passw.
Product length	Store Parameters	Language	Baud rate	WEB supervisor p.
Multi label mode	Loop dancer adj.	Access authoriz.	No. of data bits	WEB operator p.
Label 2 offset <sup>a</sup>	Auto Sensor Adj.	Materialend err	Parity	
Label 3 offset <sup>b</sup>	Sensor Adjust	Materialend warn	Stop bits	
Miss. label tol.	Speed Adaption	Rewinder full	Data synch.	
Miss. label mode	Encoder Type	Ext. OD sensor	Frame error	
Stop count. mode	Encoder Resol.	OD Sens.polarity		
Label stop quan. <sup>c</sup>	Encoder Diameter	Loop supply mode	>NETWORK PARAM.	
	Rewinder Operat.	Loop setup	IP Addressassign	
	Tandem Operation		IP address	
	Tandem startmode		Net mask	
	Tandem synchron.		Gateway address	
	Slave IP address		Port address	
	Tandem Distance		Ethernet speed	

[Tab. 17] Menu overview - part 1.

- a) Appears only if LABEL SETUP > Multi label mode = „x labels/start“.  
 b) Appears only if LABEL SETUP > Multi label mode = „3 labels/start“.  
 c) Appears only if LABEL SETUP > Stop count. mode = "On".

- Parameter with grey background:

*Only the parameters* required to operate a ALX 73x which has been configured and set up are described in this operating manual. These parameters have a grey background in the overview.

- Parameters with a white background:



Settings to parameters that are represented with a white background in the overview require specialist knowledge and must therefore only be made by qualified service personnel. These parameters are described in the Assembly/Service manual.

SIGNAL INTERFACE	(continued)	SERVICE/DIAGNOS.	SERVICE DATA	(continued)
Interface mode	Apply comp. time	Service	>MODULE FW VERS.	Production date
>PLC SIGNALS	Status signals	Serv. data reset	System version	PCB part number
End dispense mod	Touch down sens.	Sensor Test	System revision	Board part numb.
Disp.end delay	TouchDownTimeout	PS registers	System date	Manufacturer
End pulse width		Memory card test	Applicator int.	Work place
	>ACTIVE INPUTS	Test functions		Company name
>APPLIC. SIGNALS	Start signal	Store diagnosis	>OPERATION DATA	
Applicator type	Inhibit signal	Gen.Support Data	Service operations	>DISPLAY DATA
Status outputs	OD sensor signal	Data blocks del.	Tot. mat. length	Display Version
Apply mode		Loop dancer val.	Dispensing cycl.	Display serialNr
Dwell time			Operation time	Remote disp.vers
Blow on time			Total Operation	Remote disp. ##
Restart delay				
Position timeout			>POWERSUPPLYDATA	>MEMORY DATA
Apply comp. time			Type	RAM memory size
Touch down sens.			Version	Flash mem size
TouchDownTimeout			Serial number	Default values
			PS Temperature	
>AI BOARD SIGNAL			Standby+On time	
Applicator type				
Apply mode			>CPU BOARD DATA	
Start disp. mode			CPU identifier	
Dwell time			PCB Revision	
Blow on time			FPGA version	
Restart delay			MAC Address	
Position timeout			Serial number	

[Tab. 18] Menu overview - part 2.

## Information about the parameter description

- The setting range or the individual settings of a parameter are shown in square brackets.
- For parameters with individual setting values, the preset value is shown in italic type.

## Tips for data entry in the parameter menu

### Line overflow

If the displayed text is longer than the length of the line in the display:

Move text to the *left*:

→ Press the  key.

Move text to the *right*:

→ Press the  key.

### Entering network addresses

To move to the next/preceding alphanumeric character:







→ Press the  or  key.

Confirm the selection and move to the next position:

→ Press the  key.

➡ It is also possible to make entries using the WEB server function.

### Quick adjustment

Keys	Effect
 + 	Reduce value ten times faster
 + 	Increase value ten times faster
 + 	Reset value to lowest setting

[Tab. 19] Key combinations for quick adjustment of parameters with a large value range.

## LABEL SETUP menu

### Load prod.profil

Load product profiles from the internal database.

Product profiles contain product-specific settings.

Max. 16 product profiles can be selected.

The number of a product profile can only be selected if a profile is already stored under that number.

### Gap detect. mode

After the following events the dispenser needs to detect the punch again, i.e. initialise the label material: after switching on; after changing material.

Settings: [*Manual*, "Autom. forward"]

- Manual: The operator must start the initialisation of the the label material manually (by pressing the feed key several times).
- Autom. forward: The label material is initialised automatically if necessary.

**Dispense speed**

Speed at which the label is dispensed.

Setting range: [5.0...50.0] m/min; default: 10,0

**Slew speed**

Feed speed at which the label material is driven if missing-label-gaps occur and during the automatic measuring of the label length.

Setting range: [5.0...50.0] m/min; default: 1,0

**Label pitch**

Label pitch = label length+gap

Setting range: [5,0...600,0] mm; default: 100,0 mm

**Lab. stop offset**

Stop position of the label on the dispensing plate

Setting range: [0,0...999,9] mm; default: 20,0

**Start offset**

The effect of this function differs for slave machines in tandem mode.

- Standard mode or master machine:  
Distance between product sensor and the tip of the dispensing plate. The setting affects the position of the label on the product.  
Setting range: [15,0...2999,9] mm; default: 15,0
- Slave machine:  
Fine setting of the label position on the product.  
Setting range: [-30.0...+30.0] mm; default: 0,0

**Product length**

Start signals are suppressed while the product length is being set.

Setting range: [0.0...1999.9] mm; default: 0.0 mm



The product length function is helpful for example with products that have an uneven surface, which would cause multiple start signals.

**Multi label mode**

Settings: [Off, "x labels/start"]

- Off: One label is dispensed for each start signal
- "x labels/start": x labels are dispensed for each start signal; x = [2...20]

➡ x > 3: The distance of all following labels after the 2nd label matches the value set in LABEL SETUP > Label 2 offset.

➡ The "Multi label mode" function only works if the start signal is sent via a standard signal input (M12 or D-Sub 15). - It does *not* work if the applicator interface is used as a signal input.

**Label 2 offset**

➡ Only appears, if LABEL SETUP > Multi label mode = „x labels/start“.

Defines the distance of the 2nd label and of all following labels, if  $x > 3$  (see LABEL SETUP > Multi label mode). The distance is measured from the front edge of the preceding label.

Setting range: [x...9999.9] mm; default: x, where

$x = \text{LABEL SETUP} > \text{Label pitch}$ .

**Label 3 offset**

➡ Only appears, if LABEL SETUP > Multi label mode = „3 labels/start“.

Defines the distance of the third label for the function LABEL SETUP > Multi label mode (see above). The distance is measured from the front edge of the preceding label.

Setting range: [x...9999.9] mm; default: x, where

$x = \text{LABEL SETUP} > \text{Label pitch}$ .

**Miss. label tol.**

Missing label tolerance

Maximum permitted number of successive labels on the label belt

Setting range: [0...10]; default: 1

**Stop count. mode**

Settings: [On, Off]

On: Dispensing counter counts backwards, starting with the value set in LABEL SETUP > Label stop quan. After 0 is reached, no other labels are dispensed.

Off: Dispensing counter counts forwards, i.e. each label that is dispensed increases the counter state.

**Label stop quan.**

After dispensing this number of labels, the dispenser stops

This function only appears if LABEL SETUP > Stop count. mode = "On"

Setting range: [0...99999]; default: 0

**MACHINE SETUP menu****Store prod.prof.**

Save the current settings as a product profile

With the exception of functions MACHINE SETUP > Dispense counter and LABEL SETUP > Label stop quan., all functions are saved as described under MACHINE SETUP > Store Parameters = "Without adj. par" (file "Setup.for").

**Del. prod.profil**

Deletion of a product profile from the internal database

**Disp. Cnt. Reset**

Settings: [Yes, No]

- Yes: Dispense counter is set to zero
- No: Dispense counter is not set to zero



**Turn-on mode**

Operating mode the machine is in after it is turned on

Settings: [*Online*, Offline, Standalone]

- Online: dispensing mode
- Offline: setting mode
- Standalone: operation in standalone mode. Required to load firmware or configurations from CF card.

**Language**

Language used in the display

Settings: [German, *English*, French, Spanish, Dutch, Danish, Italian, Polish, Turkish, Russian]

**Materialend err**

Related to internal OD monitoring.

- Settings: [Off, „*Mat.diam* < *x mm*“]
- *Setting range for x* = [40...500]
- Default setting: *x* = 60

Disabling the function:

→ Set *x* < 40.

Re-enabling the function:

→ Press the  key.

Defines the diameter threshold for the material roll. If the (calculated) material roll diameter is below the threshold value, the following *status message* appears:

Status num: 5071  
Material end unw

An additional material end error is caused, if no unwinder rotation is detected during at least 600 mm of material feeding:

Status num: 5072  
Material end unw

**Materialend warn**

Related to internal OD monitoring.

- Settings: [Off, „*Mat.diam* < *x mm*“]
- *Setting range for x* = [50...500]
- Default setting: *x* = 80

Disabling the function:

→ Set *x* < 40.

Re-enabling the function:

→ Press the  key.

Defines the diameter threshold for the material roll. If the (calculated) material roll diameter is below the threshold value, the following *warning* appears:

ONLINE  
Material low

**Rewinder full**

Defines the maximum permissible diameter of the wound backing paper on the backing paper re-winder. If the diameter is exceeded, the following message appears:

Status num:	5145
Rewinder full	

Setting range: [50...500]; default: 270 mm

## PRINTER PARAMETER MENU

### Overview of parameter menu

PRINT INFO	PRINT PARAMETERS	INTERFACE PARA	SYSTEM PARAMETER	(DP INTERFACE)
...	Print speed	...	...	...
	Feed speed		Label sens. type	
	Materialtype		...	
	Materiallength		Ribbon autoecon.	
	Materialwidth		Ribb. eco. limit	
	Print direction		...	
	...		Print contrast	
	X - Printadjust		...	
	Y - Printadjust			
	...			

[Tab. 20] Printer parameter menu part 1

(ZPL PARAMETERS)	(I/O BOARD)	SPECIAL FUNCTION	SERVICE FUNCTIONS	SERVICE DATA
...	...	...	...	...
		Delete Job	Head dot test	
		Delete Spooler	...	
		...	Print test	
		Store Parameters		
		Store diagnosis		
		...		

[Tab. 21] Printer parameter menu part 2

- Menu title in brackets: Configuration of the printer determines whether the menu is visible.
- „...“: Place holders for one or more parameters which are not described below.



Settings to parameters that are not described here require specialist knowledge and must only be made by qualified service personnel. These parameters are described in the Assembly/Service manual.

### Information about the parameter description

- The setting range or the individual settings of a parameter are shown in square brackets.
- For parameters with individual setting values, the preset value is shown in italic type.

## PRINT PARAMETERS menu

### Print speed

Print speed

The print speed (material feed) can be adapted to the combination of ribbon and material in use to optimise the contrast intensity and the degree of blackening of the print image.

Setting range: [2...16] inch/s; presetting: 8 inch/s

### Feed speed

Feed speed

The feed speed can be increased in areas with no print. This reduces the overall print time, especially for long labels with very little printed surface.

■▶ When the print speed is changed, the feed speed is set equal to the print speed. If a different feed speed is preferred, it must be set again.

Setting range: [2...12] inch/s; presetting: 8 inch/s

### Materialtype

Definition of the label material in use.

Settings: [Endless, *Punched*]

- Endless: The label material has no punches or reflex markings. The start of the label is calculated by the set label length (PRINT PARAMETERS > Materiallength).
- Punched: The individual labels in the label material that is used have punches or reflex markings that can be detected by the label sensor.

■▶ ALX 73x: Only the "Punched" setting can be used.

### Materiallength

Label length, measured from the front (beginning) of a label to the front of the next label.

Setting range: [5...max. length <sup>1</sup>] mm; presetting: 100 mm

### Materialwidth

Width of the label belt (including backing paper in the case of self-adhesive material).

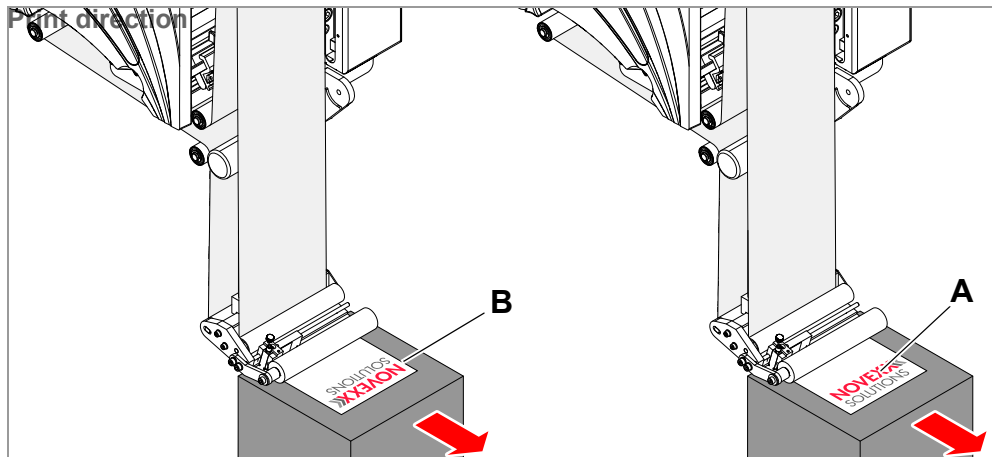
Setting range: [Min. width <sup>2</sup>...Max. width <sup>3</sup>] mm; presetting: 100 mm

---

1) "Max length": depends on the printhead width and memory configuration.

2) "Min. width": depends on the type of printer

3) "Max. width": depends on the printhead width and memory configuration of the printer



[41] Alignment of the print image "Foot first" (A) or "Head first" (B).

Settings: [„Foot first“, „Head first“]

- "Foot first": Alignment of the print image as shown in [41A].
- "Head first": Alignment of the print image as shown in [41B]. Note the following:
  - ▮ Define the "true" label length (without label gaps) in parameter PRINT PARAMETERS > Material length. If the label gap is longer than 5 mm parameter SYSTEM PARAMETER > Miss. label tol. must also be set to a value greater than zero.
  - ▮ The distance between the material zero line and the first printable dot is 1 mm. To maintain this distance in head first mode, calculate the material using the following formula:

$$b_{Mat} = b_{Tr} - 2mm, \text{ where}$$

$b_{Mat}$ : Material width

$b_{Tr}$ : Carrier material width

### X - Printadjust

The zero point of the mask is shifted in relation to the edge of the label on the X-axis, i.e. perpendicular to the material.

▮ If the setting is changed while a print job is stopped, the printer recalculates the format with the modified values.

Setting range: [-15.0...+15.0] mm; presetting: 0 mm

- Maximum adjust (offset) away from the edge of the label: +5.0 mm
- No offset: 0.0 mm
- Maximum offset toward the edge of the label: -5.0 mm

### Y - Printadjust

The zero point of the mask is shifted in relation to the punch position on the Y-axis, i.e. in the direction of feed.

▮ If the setting is changed while a print job is stopped, the printer recalculates the format with the modified values.

Setting range: [-15.0...+15.0] mm; presetting: 0 mm

- Maximum offset in feed direction: +5.0 mm
- No offset: 0.0 mm
- Maximum offset opposite to feed direction: -5.0 mm

## SYSTEM PARAMETER menu

### Label sens. type

Sensor type

Select the sensor type or the type of mark for beginning of the label (reflex marking or punch).

Settings: ["Reflex", "Punched"]

- Reflex: Reflex sensor (detects reflex markings)
- Punched: Transmission sensor (detects reflex punches)

### Ribbon autoecon.

Ribbon saving (ribbon autoeconomisation)

Ribbon saving can be used to interrupt ribbon feed through areas of the label that are not printed. This saves ribbon, especially for long labels with very little printed surface.

Compared to the „normal“ ribbon saving function can the label throuput be considerably increased by setting the „turbo“ ribbonsaving mode (On Turbo). This mode allows setting the feed speed in print free areas independent from the print speed via PRINT PARAMETERS > Feed speed.

Settings: ["Thermal/headlift", "Thermal printing", "Ein", "Aus", „On Turbo“]

- "Thermal/headlift": Thermal direct printing with automatic head lifting over unprinted areas (protects the printhead)
- "Thermal printing": Thermal direct printing (ribbon end sensor shut off)
- "Ein": Thermal transfer printing with ribbon saving
- "Aus": Thermal transfer printing without ribbon saving
- „On Turbo“: Thermal transfer printing with „turbo“ ribbon saving

### Ribb. eco. limit

The ribbon economisation limit corresponds to the length of the no-print zone on the label at the point where ribbon autoeconomisation will be activated.

■► Do not activate ribbon autoeconomisation for unprinted areas unless they are more than about 10 mm in length.

Setting range: [2.0...100.0] mm; presetting: 10.0 mm

### Print contrast

The setting for print contrast, i.e. the degree of blackening in the printout.

#### CAUTION!

The Print contrast parameter directly affects the service life of the printhead. In general, the higher the setting of the Print contrast, the shorter the service life of the printhead. This applies especially to settings over 100%. Therefore note the following recommendation:

→ Always select the lowest setting that will still produce acceptable printing results.

Setting range: [1...110%]; presetting: 60%

## SPECIAL FUNCTION menu

### Delete Job

Deletes the active print job.

When the online key is pressed, the printer interrupts processing of the active print job.

Delete Job  
Clearing ...

### Delete Spooler

Deletes the print job wait queue (spooler).

When the online key is pressed, all print jobs in the print spooler are deleted.

Delete Spooler  
Clearing ...

### Store Parameters

Save settings in the parameter menu.

Parameter settings are saved in a text file on memory card (directory FORMATS\). Also takes into consideration parameters belonging to uninstalled options.

Settings: ["Without adj. par", "With adjust para"]

- "Without adj. par": Parameters containing device-specific settings are *not* saved.

*Application:* Transfer of settings to other devices (device-specific settings such as heat resistance or sensor settings should not be overwritten).

Pre-set filename: SETUP.FOR

- With adjust para

Parameters containing device-specific settings are saved *as well*. The relevant parameter names are marked in the text file with a \*.

*Application:* Service

Pre-set filename: SETUPALL.FOR

### Store diagnosis

Saves diagnostic data to memory card.

Pre-set filename:

Diagnose ALX 735 PMA RH A662105104002453.log where...

- "ALX 735 PMA RH": Printer type
- "A662105104002453": Serial number of the CPU board; corresponds to the entry in SERVICE DATA >CPU BOARD DATA > Serial number

## SERVICE FUNCTIONS menu

### Head dot test

Checks the printhead for faulty dots. The check ends with a status report [42] containing a list of faulty dots. This printout is generated even if no faulty dots were found.

**CAUTION!**

Danger of damage to the printhead.

→ Do not switch off the printer under any circumstances during the dot check! Failure to observe this instruction may cause dots to be destroyed.

The following screen appears during the check:

Head dot test  
Please wait ...

➡ Required label material: 200 x 100 mm (length x width).

Head Dot Test Status									
Head data									
Head resistance		: 1364 Ohm							
Print width		: 128.0 mm							
Print resolution		: 12.0 Dots/1 mm							
Number of dots		: 1536 Dots							
25 defective print dots									
1,	417,	418,	419,	557,	700,	761,	770,	771,	
772,	773,	774,	775,	776,	777,	778,	779,	780,	
781,	782,	783,	784,	833,	834,	835,			

[42] Status report after the dot check has been successfully completed. Top section: Technical data for the printhead; bottom section: faulty dots.

➡ The dot check can also be started in offline mode by pressing the APPLY + FEED keys. There is no status report in this case, however.

### Print test

A general print test; prints the set printer type and the number of the firmware version in different fonts arranged by line with material settings such as material type, length and width also taken into consideration.

→ To exit the print test press the ONLINE key.



# Startup & Operation

## ELECTRICAL CONNECTIONS



### WARNING!

This unit operates at mains voltage! Contacting electrically live components can cause lethal electrical shocks and burns.

- The machine must only be connected to the mains power supply by an authorised specialist. This person must be acquainted with the associated dangers.
- Only operate the unit at the mains voltage given on the type plate.
- Make certain the units is switched off before you plug in the mains power connecting line.
- The maximum permitted length of the mains power connecting line is 3 m.

### Connecting to the mains power supply

The machine mains supply plug is delivered with the machine, unattached.



The mains supply plug must only be connected with the mains power connecting line by an authorised specialist. The specialist must be acquainted with the associated dangers.

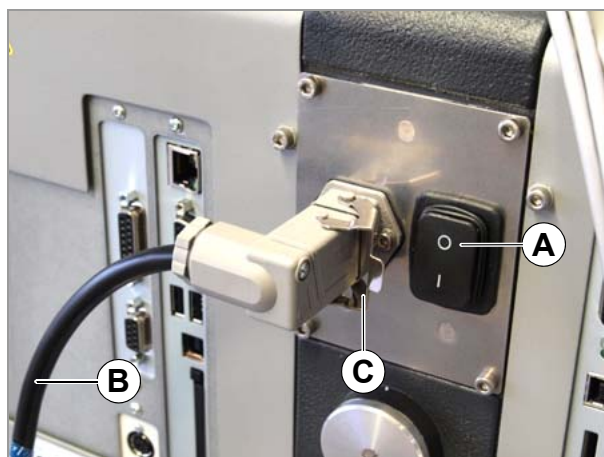
For information about preparing the mains power connecting line, see the Assembly/Service manual.

To plug in the mains power connecting line:

1. Ensure that the machine is switched off (mains power switch [43A] in position "O").
2. Plug the mains power connecting line [43B] into the machine.
3. Close the safety bracket [44].

To unplug the mains power connecting line:

1. Ensure that the machine is switched off (mains power switch [43A] in position "O").
2. Open the safety bracket [43B].
3. Remove the mains power connecting line.




[43] Mains power connecting line (B) plugged in.



[44] Safety bracket closed.

## Connecting to a data host


According to the factory settings, the ALX 73x is set for data transfer via USB interface. Print data can also be transferred via serial interface or Ethernet interface.

Alternatively to transmitting via data line, the printjobs can be stored on a memory card and be started from there, see **Transferring a print job**  on page 98.

The interface type is selected with the following parameter: (PMA) INTERFACE PARA >EASYPLUGINTERPR > Interface

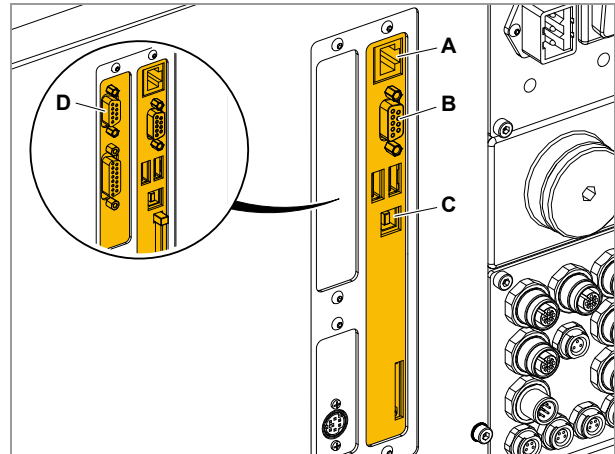
You might have to set other parameters as well, depending on the interface chosen:

- Settings for the serial interface (Com 1 or Com 3 <sup>1)</sup>):  
INTERFACE PARA > >COM1 PORT or INTERFACE PARA >COM3 PORT.
- Settings for the Ethernet interface: INTERFACE PARA >NETWORK PARAM.

For details about *data transmission* read the user manual, chapter „Startup and operation“ > „Printing“ > **Transferring a print job**  on page 98.

Ordering numbers for *data cables*:

- RS 232: A1207
- USB: 126738



[45] Datenschnittstellen am ALX 73x.

- A Ethernet
- B RS 232
- C USB
- D RS 232/422/485 (optional)

1) If the optional 2nd serial interface is installed.

## Connecting sensors



### WARNING!

This unit operates at mains voltage! Contacting electrically live components can cause lethal electrical shocks and burns.

→ The machine must only be connected with other machines if they meet the requirements of a SELV circuit (Safety Extra-Low Voltage circuit) in accordance with EN 60950.

→ Before switching on the machine, check to ensure all required sensors are securely connected [46].



More extensive information about suitable sensor types, pin assignment, etc. may be found in the Assembly/Service manual.

### Minimum required sensors

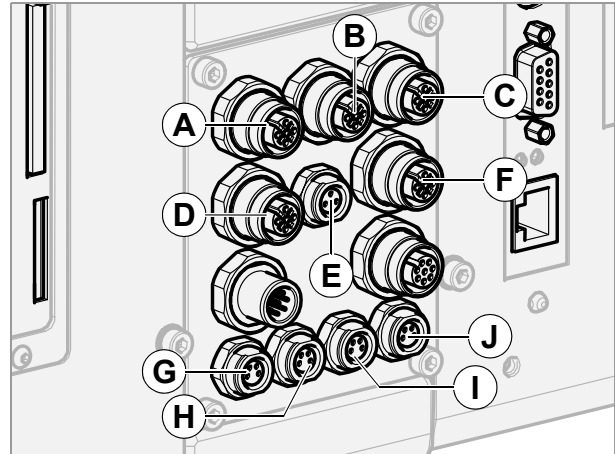
- Label sensor [46A]  
(assembly location: dispensing edge)
- Product sensor [46B]  
(assembly location: assembly line)
- Linear dancer lever sensor [46E][47]

### Optional additional sensors

- Rotary encoder (for automatic speed adaptation) [46C].
- Alternative label sensor [46D]
- Sensors for internal OD detection:

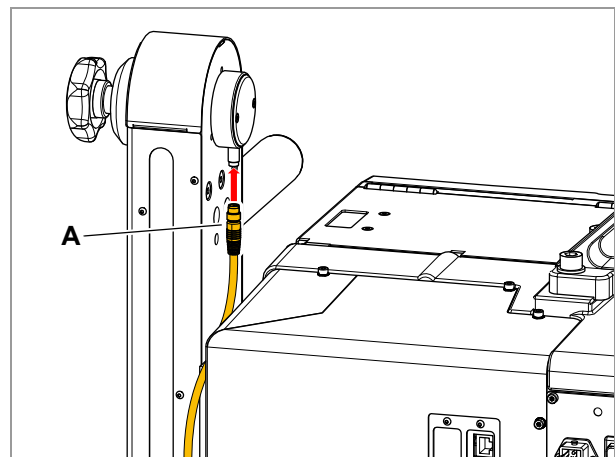
The sensors for OD detection are integrated into the material dispenser and must be connected with the optionally available cables.

- Dispenser 1: connections [46G+H]
- Dispenser 2: connections [46I+J]

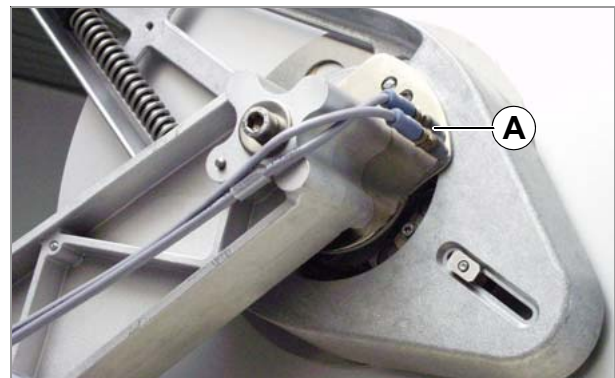


[46] Connections for sensors:

- A Label sensor (dispenser)
- B Product sensor
- C (Optional) rotary encoder
- D (Optional) alternative label sensor
- E Linear dancer lever sensor
- F External RD sensor
- G Internal roll diameter (OD) detection, unwinder 1
- H Internal OD detection, unwinder 1
- I Internal OD detection, unwinder 2
- J Internal OD detection, unwinder 2



[47] Connect the sensor of the linear dancer lever with the cable (A) included with delivery.



[48] Connections (A) for internal OD detection on the dispenser.

## INSERTING LABEL MATERIAL



### WARNING!




Danger of injury due to moving and rapidly rotating parts!

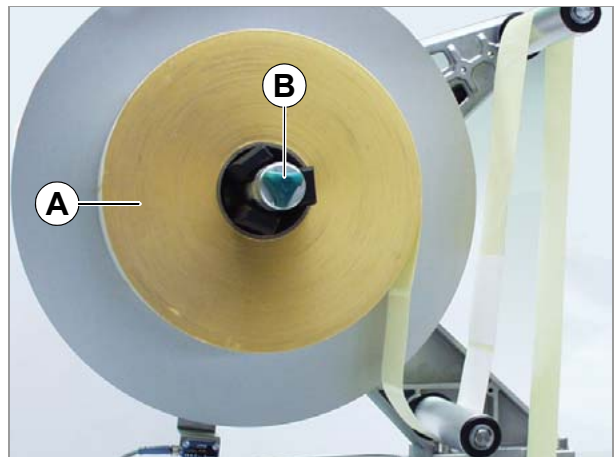
→ Before inserting the label roll ensure that the printer and dispenser are both in offline mode.

Danger of injury caused by falling label roll.

→ Wear safety shoes.

### Inserting the label roll

1. If necessary, adjust the diameter of the unwinding mandrel to the core diameter of the material roll; see section **Adjusting the core diameter of the unwinder**  auf Seite 83.
2. Push the material roll [49A] onto the unwinder until it stops.
3. Turn the knob [49B] clockwise until the label roll is firmly seated.  
 For the remainder of the material flow, see section **Threading in the label web**  auf Seite 73.

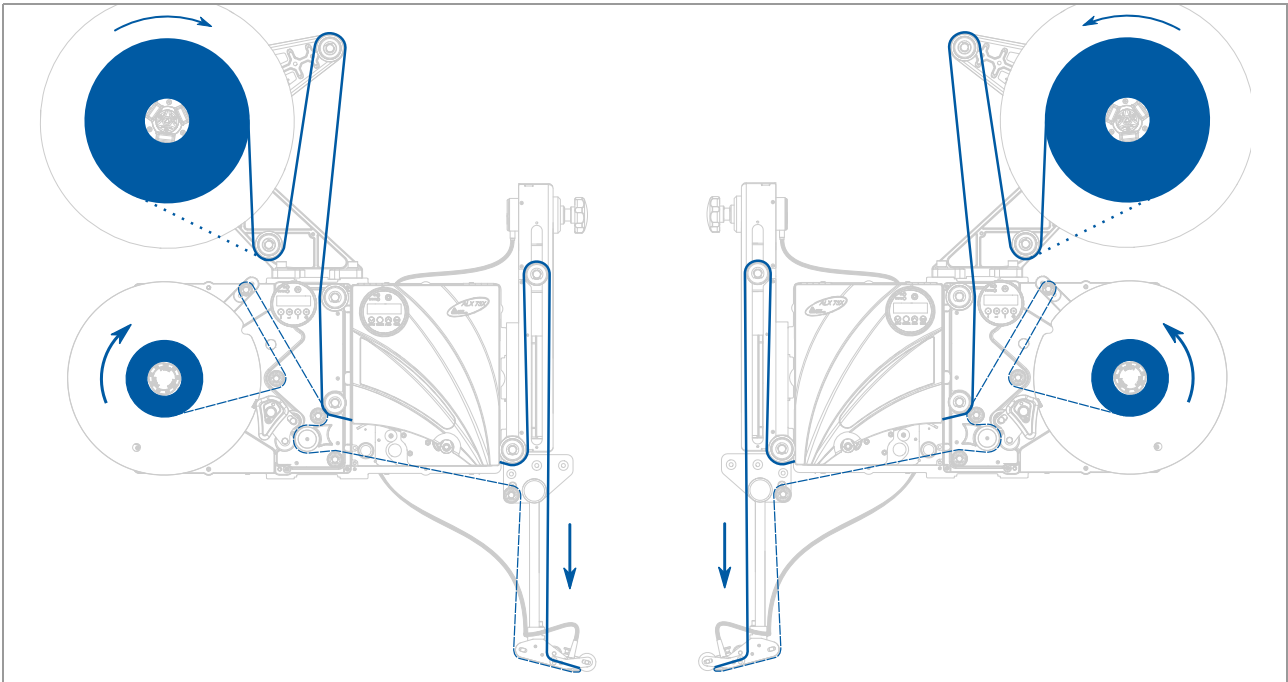


[49] Inserting a material roll

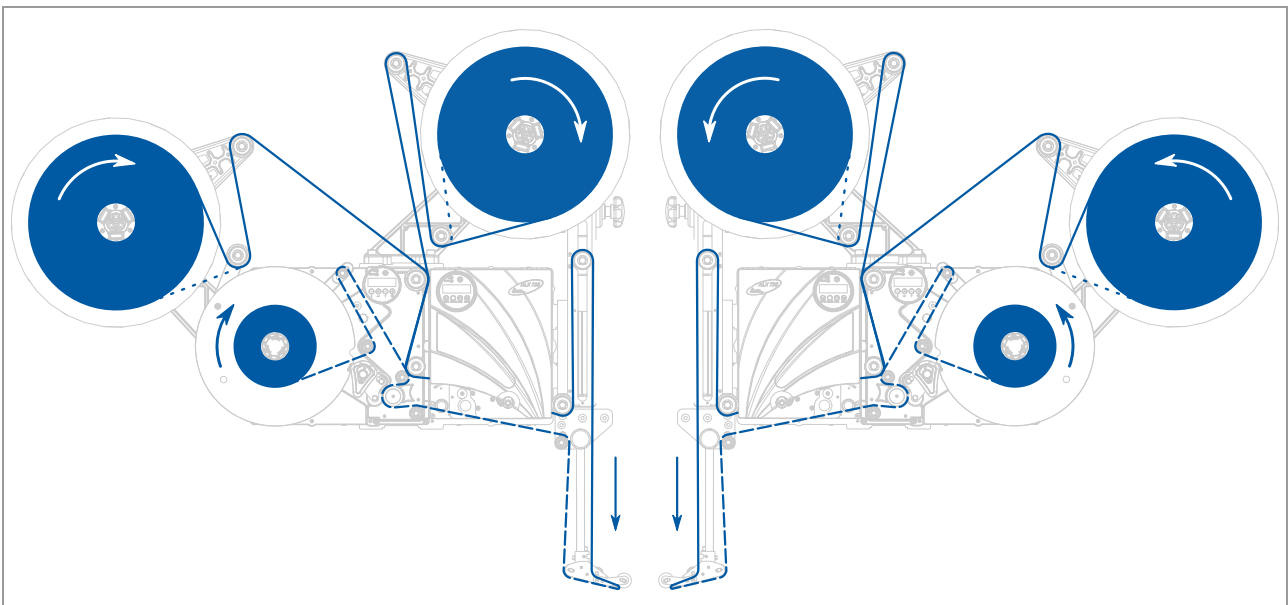
## Threading in the label web

### Threading diagrams

The following illustrations show the flow of material <sup>1</sup> through the ALX 73x in different installation positions and designs with right-hand and left-hand versions.

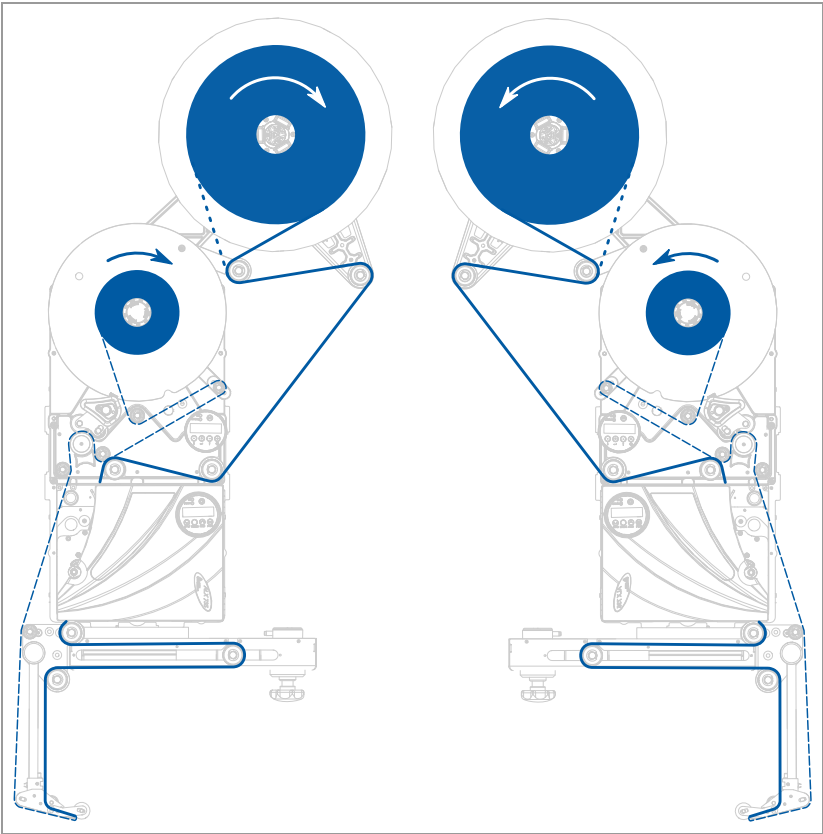


[50] Flow of material with horizontal installation and one unwinder.

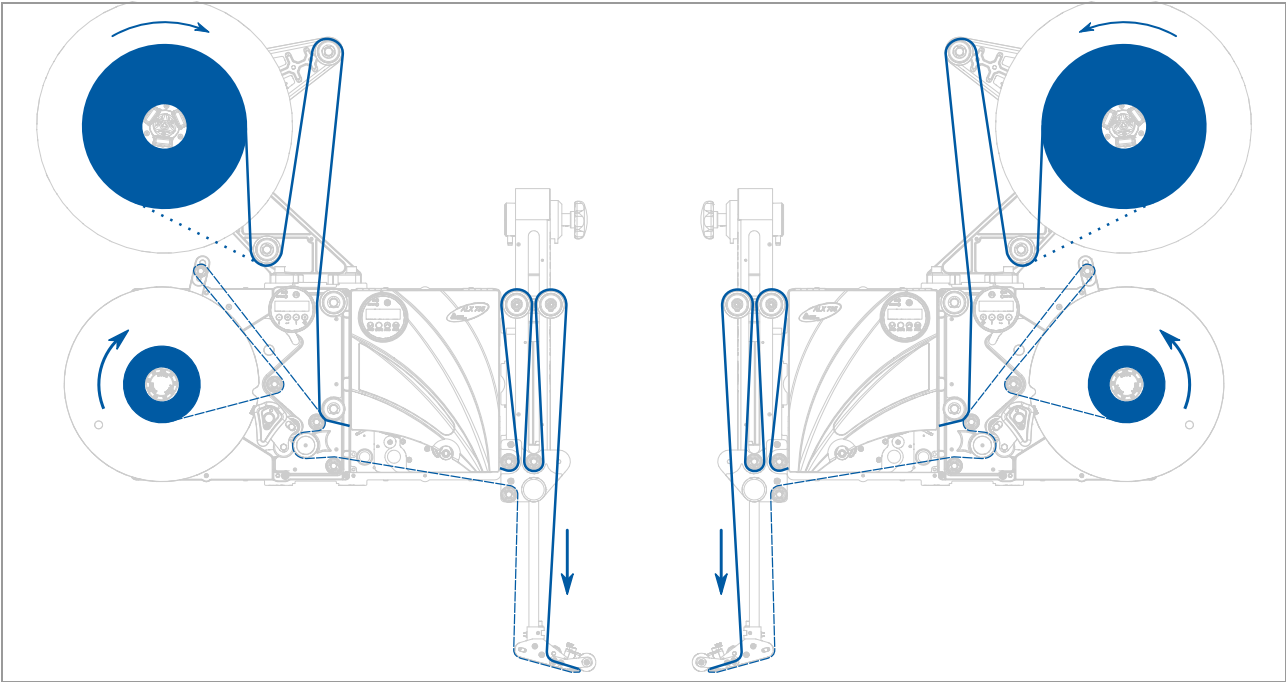


[51] Flow of material with horizontal installation and two unwinders.

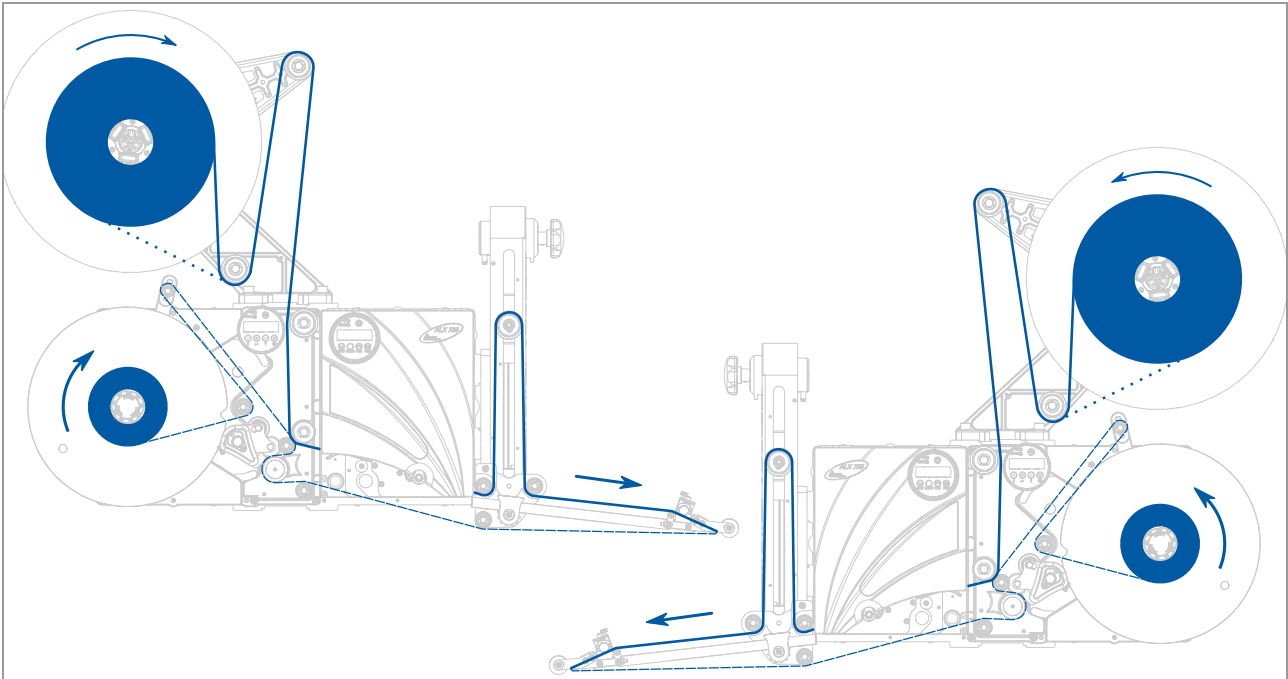
1) Solid line: flow for material rolls with labels on the outside. Dotted line: deviating flow for material rolls with labels on the inside.



[52] Flow of material with vertical installation and one unwinder.



[53] Flow of material with horizontal installation, one unwinder and double roller at the dancer lever.



[54] Flow of material with horizontal installation, one unwinder and V-shape dispensing edge.

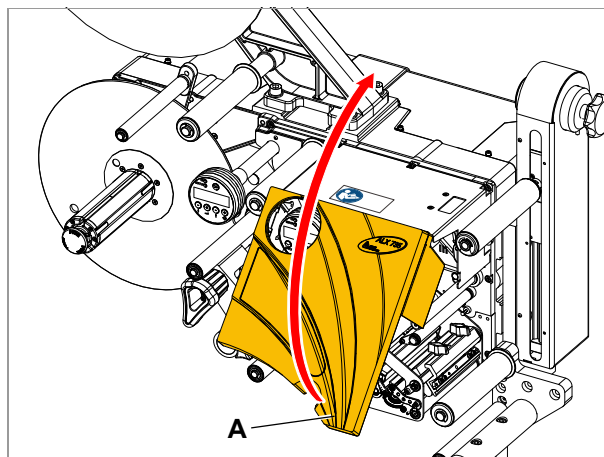


**Threading the label web into the printer**

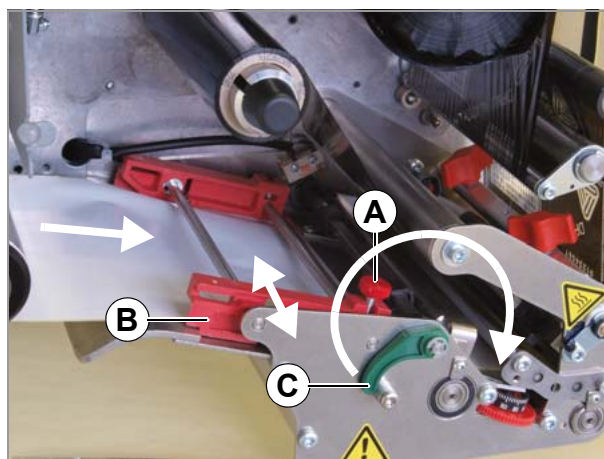
1. Open the printer cover [55].  
 ■■■► Hold the cover on the bottom right [55A].
2. Adjust the material guide to the width of the label web. To do this, release the thumb screw [56A] on the outer material guide [56B], push the material guide up to the edge of the label material and screw in the thumb screw again until it is tight.  
 ■■■► The label material should move easily between the guides.
3. Push the label material through the material guide and up under the pressure roller.
4. Detach the pressure roller. To do this, rotate the green lever [56C] in the direction of the arrow.
5. Push the material end under the printhead.
6. 2,5 Unroll the 2.5-m label web and remove the labels from it.
7. Close the green lever [57].

**Threading in the label web on the linear dancer lever**

→ Place the label web around the dancer lever; see section **Threading diagrams** □ auf Seite 73.



[55] Open the printer cover.



[56] Adjust the material guide (B) for the width of the material.



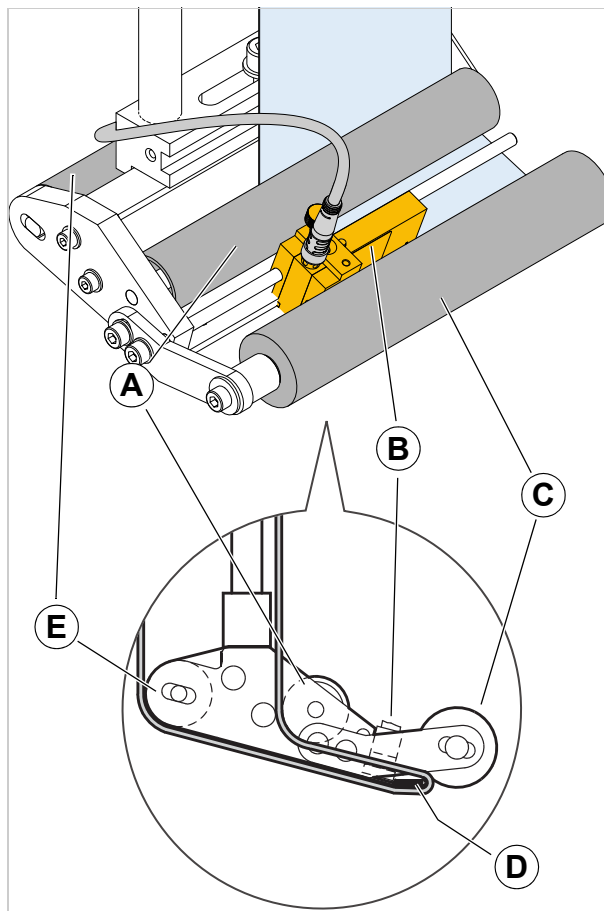
[57] Shut the lever for the pressure roller.



**Thread in the label web on the dispensing edge**

Fixed [58] and swivelling L-shape dispensing edges:

1. Guide the backing paper around the first deflection roller [58A] and through the slot in the sensor [58B].
2. Guide the backing paper under the pressure roller [58C] to the dispensing plate [58D].
3. Guide the backing paper around the dispensing plate to the second deflection roller [58E].
4. Set the tension of the backing paper so that the dancer lever is in the centre or at the upper limit.

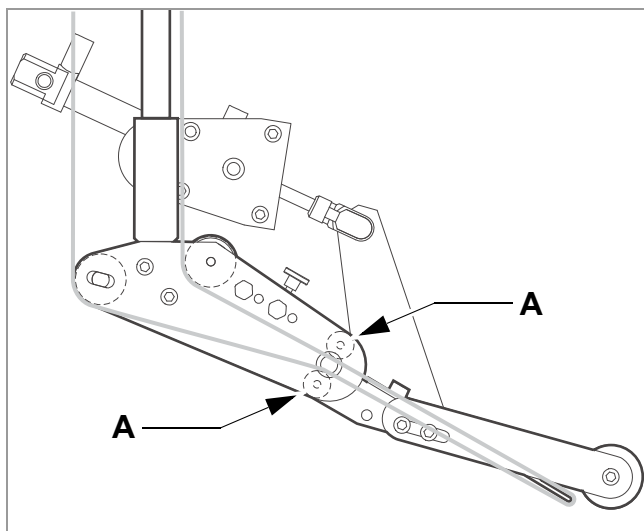


[58] Flow of the label web in the area of the dispensing edge.

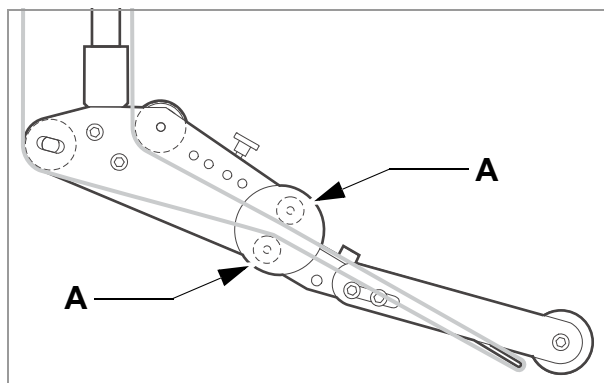
- A** 1. Deflection roller  
**B** Label sensor  
**C** Pressure roller  
**D** Dispensing plate  
**E** 2. Deflection roller

Spring-loaded [59] and pneumatic [60] L-shaped dispensing edges:

→ Guide the backing paper between the two thin guide rollers at the articulation point [59A] [60A] as well.



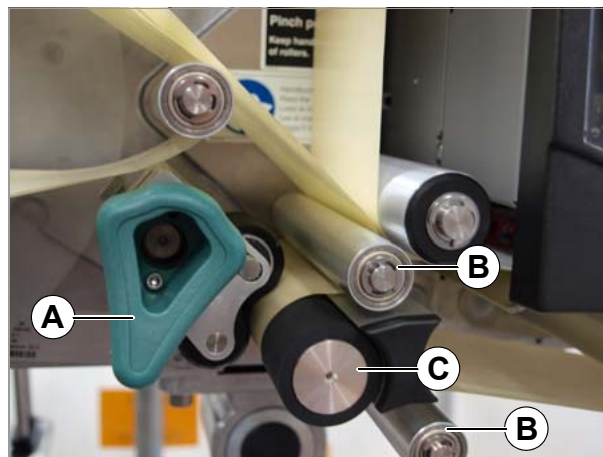
[60] Flow of the label web on the pneumatic dispensing edge (optional).



[59] Flow of the label web on the spring-loaded dispensing edge (optional).

**Thread in the label web on the drive roller**

1. Open the pressure roller. To do this turn the lever [61A] clockwise.
2. Position the backing paper around the deflection roller [61B] and drive roller [61C].
3. Close the pressure roller. To do this turn the lever [61A] anticlockwise until you feel it snap into place.



[61] Open the pressure roller.

**Thread the label web onto the rewinder**

1. Guide the backing paper around the deflection roller and dancer lever [62].
2. Clamp the backing paper in place as shown on the rewinder [63].

When the machine is switched off:

→ Turn the rewinder clockwise until the backing paper is taut [64].


When the machine is switched on:

1. Ensure that the printer and dispenser are both in "Offline" mode.
2. Press the dancer lever against the upper stop and hold it there for longer than 2 seconds.

The following error message appears on the dispenser's display:

Status num:	5143
Rewinder stop	

Now, the rewinder can be turned manually.

3. Turn the rewinder one turn.
4. Press the -key to acknowledge the error message.



[62] Guide the backing paper around the dancer lever and deflection roller.



[63] Clamp the backing paper firmly in place on the rewinder.



[64] Draw the backing paper taut.

## Replacing a label roll

### Detecting end of roll

To keep downtimes during production as short as possible, the roll should be changed as quickly as possible.

Threading the label material through the entire machine is relatively time consuming. Threading in can be avoided by connecting the beginning of the new material roll to the end of the old material roll (= splicing). This means that the material end must be detected before it is too late.

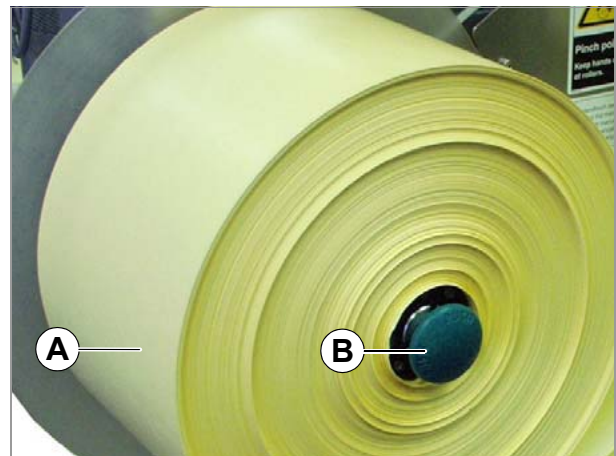
Various functions are provided for detecting the material end; see section **Material end / roll diameter** □ on page 93.

### Remove wound carrier material

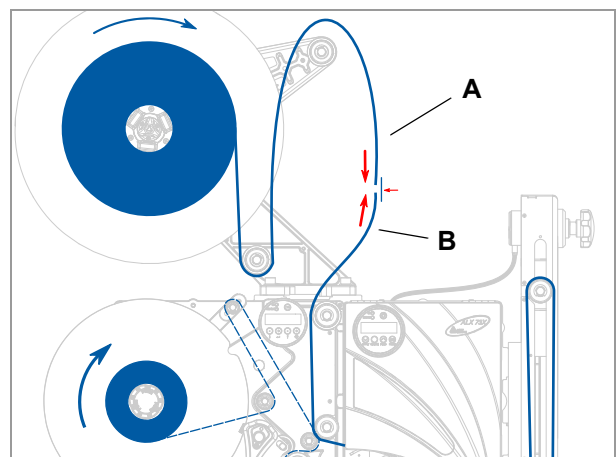
1. Press in the unlocking button [65]B].  
The rewinder's spreading mechanism is loosened.
2. Remove wound backing paper.

### Insert a new label roll

1. Insert a label roll; see section **Inserting the label roll** □ on page 72.
2. Connect the material beginning of the new roll [66A] with the material beginning of the used material [66B] (adhesive tape).
3. Press the Enter key to confirm the error message.
4. Tighten the label web. To do this press the dispenser dancer lever down and turn the dispenser backwards.
5. Feed the splicing point forward until it has passed the dispensing edge. To do so, press the feed key at the printer and afterwards the ► key at the dispenser.  
 ■■■► Printer: Slightly pull the label web out of the printer while feeding it, otherwise the web could jam.  
 ■■■► If labels are missing, the gaps must also be fed past the dispensing edge.
6. Printer: Press the Feed key to continue the print job.



[65] Backing paper rewinder.  
A Wound backing paper  
B Unlocking button



[66] Connect beginning (A) and end (B) of material.

## INSERTING/REPLACING RIBBON



### WARNING!

Rotating parts can entrap objects and body parts and draw them in!

→ Never wear loose long hair, loose jewellery, long sleeves or similar items when working with the machine.

→ Always close the printer cover before printing.

The printhead can become hot during operation!

→ Be careful whenever touching the printer.

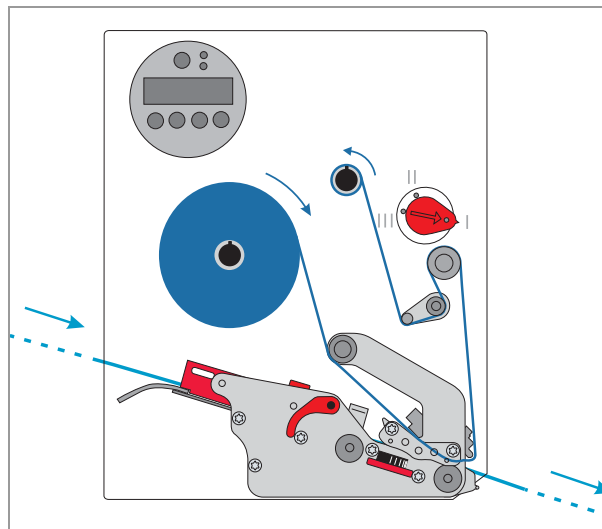
### CAUTION!

If the diameter of the wound ribbon becomes too large, this will impair the printer operation.

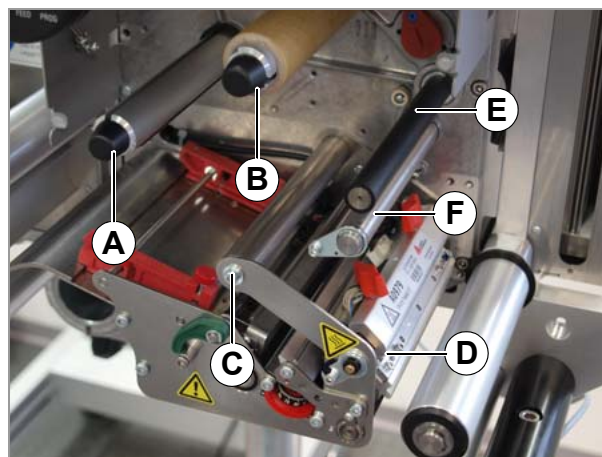
→ Always remove the used ribbon before inserting a new ribbon roll.

### Inserting ribbon

1. Open the cover.
2. If necessary remove used ribbon.
3. Place a new ribbon roll on the ribbon unwinding mandrel [68A]. Insert an empty take-up roll onto the ribbon rewinding mandrel [68B].
4. Insert the end of the ribbon below the ribbon deflector [68C] and thread through to side of printhead [68D].
5. Pull the ribbon below the printhead from the side. Next, unwind some ribbon and smoothen it out.
6. Pull the ribbon upwards and, as shown [67], pass it around the ribbon roller [68E], ribbon deflection roller and strain relief [68F].
7. Fasten the end of the ribbon to the take-up roll mandrel [69].

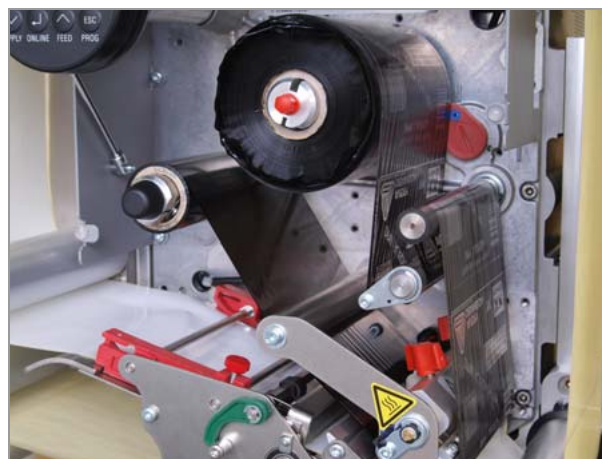


[67] Threading diagram for ribbon.



[68] Printer with cover open.


- A Ribbon unwinding mandrel
- B Ribbon winding mandrel
- C Deflector
- D Printhead
- E Ribbon roller
- F Strain relief



[69] Printer with ribbon inserted.

## Changing ribbon

### With roll diameter monitoring

We recommend switching on roll diameter monitoring, see section **Ribbon reserve**  on page 97.

As soon as the critical diameter is reached, the message appears:

FOIL X JOBS

Follow these steps:

1. Open the front cover.

The printer prints the current label completely and then stops.

PrintStatus: 5103  
Cover open

As soon as the buffer loop is empty, the dispenser also stops.

2. Changing a ribbon roll.

3. Close the front cover.

The status message is confirmed automatically.

4. Press the feed key.

The current print job continues.

### Without roll diameter monitoring

As soon as the ribbon roll is used up, the following message appears:

PrintStatus: 5008  
Foil end

The printer stops immediately, without printing the current label.

1. Open the front cover.

PrintStatus: 5103  
Cover open

As soon as the buffer loop is empty, the dispenser also stops.

2. Changing a ribbon roll.

3. Close the front cover.

The status message is confirmed automatically.

4. Press the ENTER key to confirm the ribbon end message.

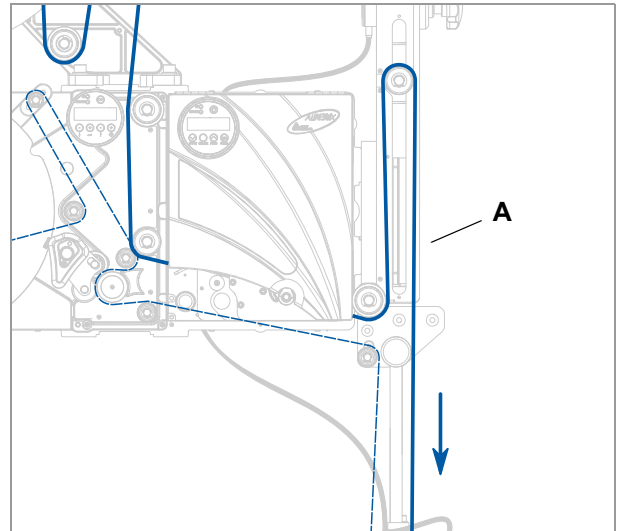
5. Press the FEED key.

The last (incomplete) label to be printed will be printed again. Then printing continues with the current print job.

Now the label that was not completely printed must be removed.

As soon as the label that was not completely printed is at the front of the buffer loop [70A]:

1. Press the ENTER key.  
The printer prints the current label completely and then stops. As soon as the buffer loop is empty, the dispenser also stops.
2. Remove the label that was not completely printed.
3. Press the FEED key.  
The print job continues.



[70] Remove the label that was not completely printed when it is at the front of the buffer loop (A).



## MECHANICAL SETTINGS

### Adjusting the core diameter of the unwinder

Tools:

3 mm hexagonal (Allen) key wrench

The unwinder can be adapted to the internal diameter of the label rolls using core adapters [71A]. Depending on this diameter, various adapters will have to be installed or removed:

38.1 mm (1") core:

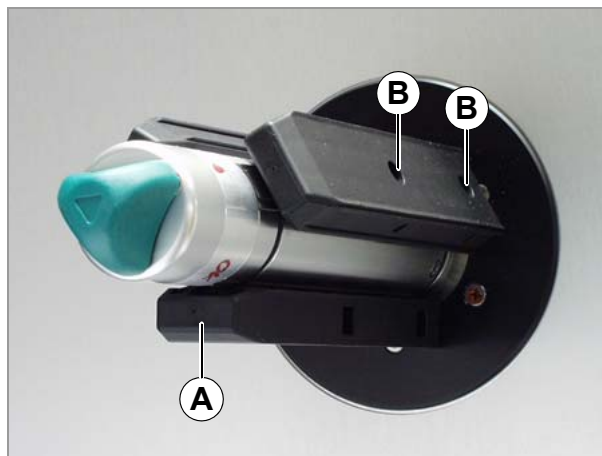
→ Unscrew the bolts [71B] (2 for each adapter) and remove the adapters.

76.2 mm (3") core:

→ Tighten the adapters as shown in figure [71].

101.6 mm (4") core:

→ Tighten the adapters as shown in figure [72].



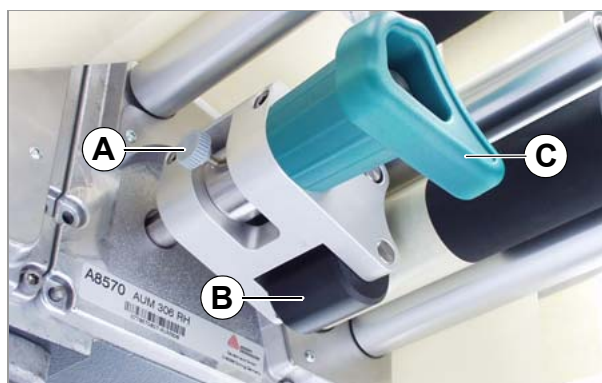
[71] Position of core adapter for 76.2 mm core diameter.



[72] Position of core adapter for 101.6 mm core diameter.

### Positioning the pressure roller

1. Open the pressure roller [73B]. To do this turn the lever [73C] until the roll snaps into place.
2. Loosen thumbscrew [73A].
3. Position the pressure roller centred over the backing paper.
4. Close the pressure roller.
5. Tighten the thumb screw.

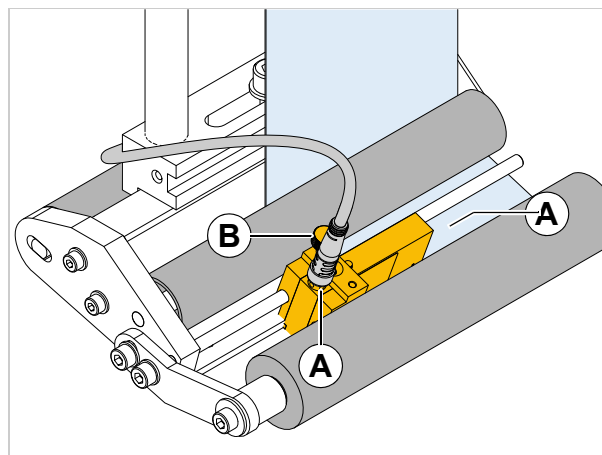


[73] Adjust the position of the pressure roller (B).

## Position the label sensor on the dispensing edge

1. Loosen the thumb screw.
2. Push the sensor into place on the axis so that it can detect the gaps between labels.

LED [74A] is lit when the sensor is standing over a label.



[74] Label sensor at the fixed L-shape dispensing edge.

## Position the label sensor in the printer

The printer is equipped with a combination transmission/reflex sensor.

By moving the red thumb wheel [75B], you can adjust the sensor within a range of 80 mm (ALX 734/5) or 100 mm (ALX 736) perpendicular to the material. The dial shows the currently set value [75A].

Reading the value:

Set value = punch position – 2 mm

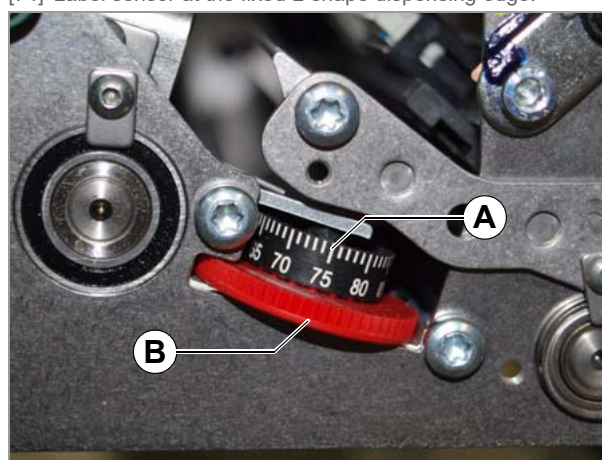
...where:

- Punch position:  
Distance of punch from (inner) edge of material [76].
- Set value:  
Dial value to be set by turning the red wheel.

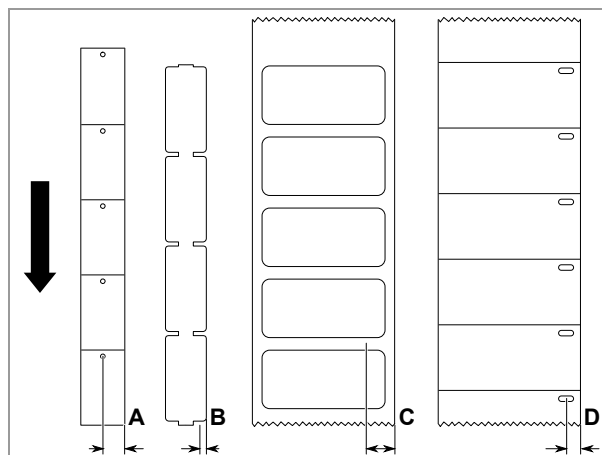
Example: Punch centre = 11 mm from left edge, subtract 2 mm leaving 9 mm as the setting.

→ To make the setting, adjust the [75B] wheel until the required setting is centred on the thumb wheel.

▮ Round labels: To ensure that the start of the label is correctly detected here, it may be necessary to define a preset value for the punch offset. This can be set manually on the printer (parameter PRINT PARAMETERS > X Print adjust) or using an appropriate Easy-Plug command.



[75] Thumb wheel (B) of the label sensor on the printer.



[76] Measuring the punch position (RH machine). C: arbitrary sensor position with centre die cut label material.



## Setting the ribbon tension

For optimum printing results, the ribbon must run without creases. This can be achieved by correctly setting the torque on the rewinding mandrel and the braking torque on the unwinding mandrel.

The factory settings cover a wide range of different ribbon widths. It may be necessary to readjust the ribbon tension for very narrow or very wide ribbons.

The braking torque of the ribbon mandrels can be adjusted using the red plastic hex bolts [77A] on the ribbon mandrels. Turning clockwise increases the torque. The caps are used to lock the bolts [77B] into place so that they are not adjusted unintentionally.

The entire length of ribbon must run evenly and crease-free between the mandrels. The following parameters are helpful for adjustments:

The ribbon...

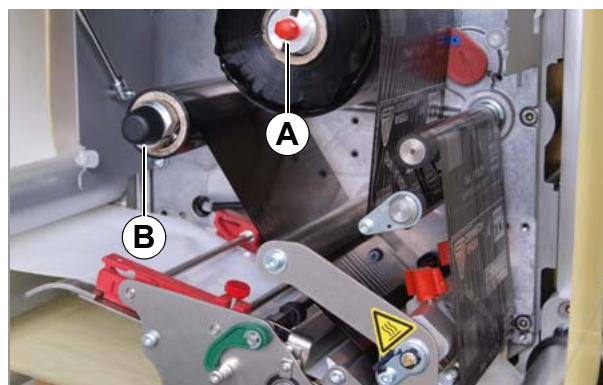
- is slack or has creases
- is wound too loosely

→ Increase unwinding/winding torque (turn bolt clockwise).

The ribbon...

- stretches visibly or tears during the printing process
- is not being transported properly

→ Reduce unwinding/winding torque (turn bolt anti-clockwise).



[77] Ribbon mandrels on the ALX 73x.

- A Ribbon rewinding mandrel (without cap)
- B Ribbon unwinding mandrel

## Setting the printhead pressure

**CAUTION!**

Shortened service life of printhead.

→ Always set the weakest printhead pressure that will produce acceptable printing results.

Different material widths and thicknesses affect the contact pressure of the printhead on the print roller.

The contact pressure can be set with an adjusting knob [78A] in 3 stages:

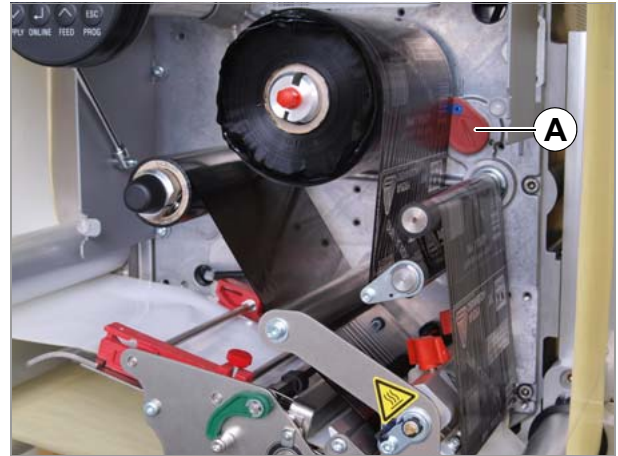
- Stage "I": position for very thin and/or narrow material
- Stage "II": (pre-setting) position for material of medium width/thickness
- Stage "III": position for very thick and/or wide material

Tools: coin or large screwdriver

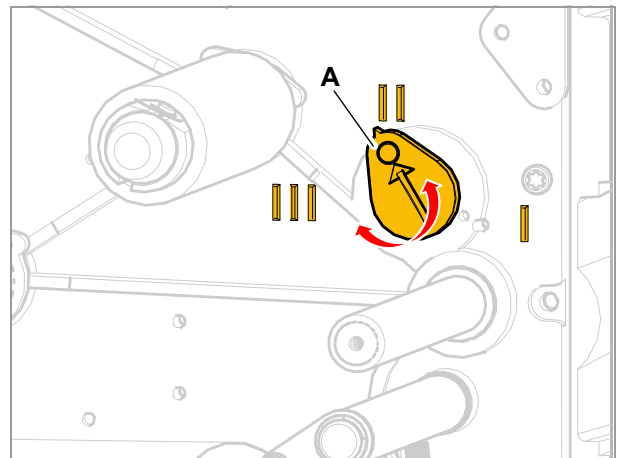
Setting:

→ Turn the adjusting knob until the arrow of the knob [79A] is positioned over the mark for the desired stage.

▮▮▮▮ The adjustment knob locks into 3 position.



[78] Adjustment knob for printhead pressure (A).



[79] Move the adjustment knob to one of the three locking positions.

## Setting the return force of the unwinder dancer lever

The dancer lever on the unwinder is set so that a wide range of label materials can be processed without having to change the setting of the dancer lever return force.

Very narrow label material may tear in some circumstances or may be stretched so much that dispensing accuracy is impaired. If this happens, the dancer lever force must be reduced:

### Unwinder with diameter of 400 mm

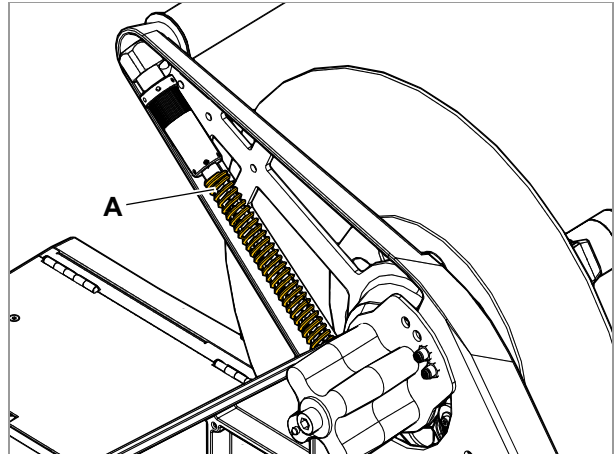
1. Loosen the lock ring [81B]. To do this turn the ring opposite to the arrow direction shown here while at the same time firmly holding the adjusting ring [81A].
2. Turn the adjusting ring [81A] opposite to the arrow direction to *increase* the return force.  
Turn the adjusting ring [81A] in the arrow direction to *decrease* the return force.
3. Hold the adjusting ring firmly again.

### Unwinder with diameter of 300 mm

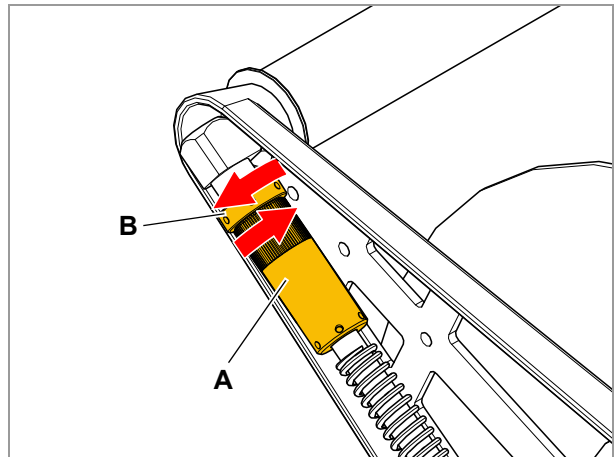
Tools: 2.5 mm Allen key wrench

→ Turn the setting screw [82A] on the dancer lever to the *left* to *increase* the return force.

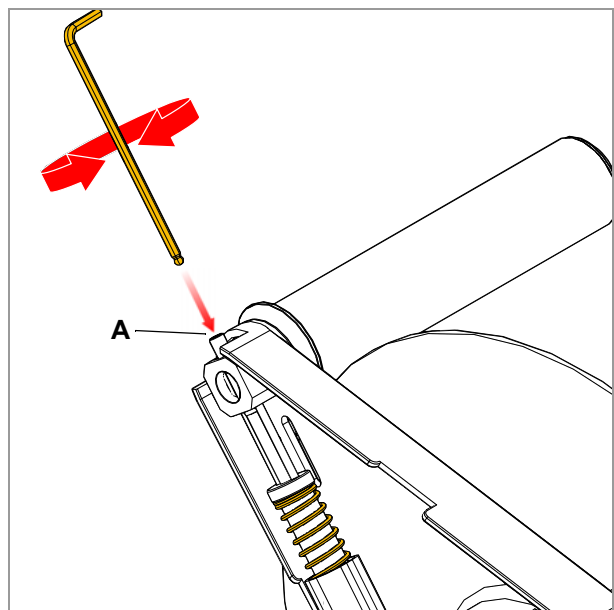
→ Turn the setting screw [82A] on the dancer lever to the *right* to *decrease* the return force.



[80] Return spring (A) on the dancer lever of the 400 mm unwinder.



[81] Return force adjustment on the dancer lever of the 400 mm unwinder.  
A Adjusting ring  
B Locking ring



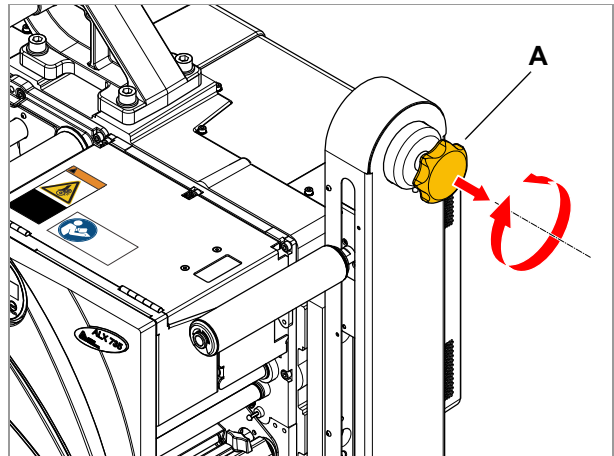
[82] Return force adjustment on the dancer lever of the 300 mm unwinder.

## Setting the return force of the linear dancer lever

The linear dancer lever is set so that a wide range of label materials can be processed without having to change the setting of the dancer lever return force.

Adjusting the return force:

1. Pull out the knob [83A].  
▮▮▮▮▮ The knob is under spring tension. Hold onto the knob firmly until it locks into place again.
2. Turn the knob (pulled out) to the desired position.  
Adjustment range: 355° (i.e. slightly less than ½ revolution in each direction)
3. Carefully release the knob and allow it to lock into the desired position.  
▮▮▮▮▮ Do not release the knob until it has locked into position.



[83] Knob (A) for adjusting the spring tension on the linear dancer lever.

### Reducing the return force

Very narrow label material may tear in some circumstances or may be stretched so much that dispensing accuracy is impaired. If this happens, the dancer lever force must be reduced:

→ Turn the knob in direction "–".

▮▮▮▮▮ The direction of rotation for "–" is opposite on LH and RH machines:

- RH: turn *anti-clockwise*
- LH: turn *clockwise*

### Increasing the return force

In some cases the label belt may "flutter". This means that the dancer lever is stretching the label belt between the dancer lever roll and the dispensing edge too slowly. If this happens, the dancer lever force must be increased:

→ Turn the knob in direction "+".

▮▮▮▮▮ The direction of rotation for "+" is opposite on LH and RH machines:

- RH: turn *clockwise*
- LH: turn *anti-clockwise*

## SWITCHING THE UNIT ON AND OFF

### Switching the machine on/off

#### Switching on the unit

→ Move the mains power switch [84A] of the machine to "I" (On).

The machine starts up. Then the dispenser and printer are both in online mode.

#### Switching off the unit

→ Move the mains power switch [84A] of the machine to "O" (Off).

The machine shuts down.



[84] Mains power switch (A) on the ALX 73x.

## SETTING AND MONITORING THE DISPENSER

### Settings in parameter menu

#### Label pitch

→ Switch to offline mode

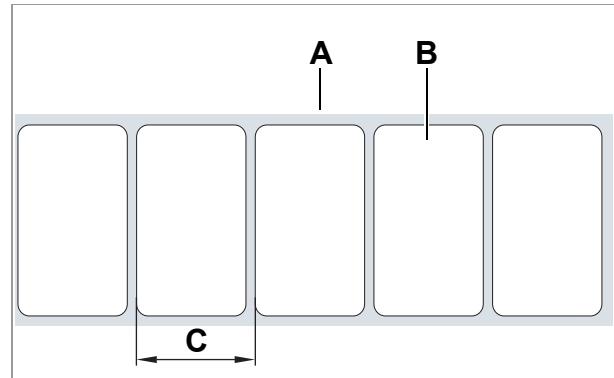
To measure label pitch automatically:

▮▮▮▮ Works only up to max. 120 mm label pitch

→ Press and hold the  key (for longer than 2 seconds).

Also possible: enter the label pitch manually:

1. Measure label pitch [85C].
2. Open function LABEL SETUP > Label pitch.
3. Enter the measured value in millimetres.



[85] Label material (self-adhesive labels)

**A** Label belt (backing paper)

**B** Label


**C** Label pitch

#### Dispensing speed

The dispensing speed can be set to a fixed value or it can automatically follow the speed of the conveyor belt (speed adaptation). A rotary encoder must be connected for operation with speed adaptation. The rotary encoder measures the belt speed and transmits it to the dispenser.

▮▮▮▮ With direct dispensing (i.e. without applicator) the dispensing speed normally corresponds to the product speed.

Setting to a *fixed value*:

→ Set the speed in online mode with the two left keys (see **Online mode**  on page 44).

Or:

→ Open LABEL SETUP > Dispense speed and set to the required speed.

Setting to *speed adaptation*:

1. Set MACHINE SETUP > Speed Adaption to "Yes" to switch on the function.
2. MACHINE SETUP > Encoder Resol. and set MACHINE SETUP > Encoder Diameter according to the rotary encoder you are using.



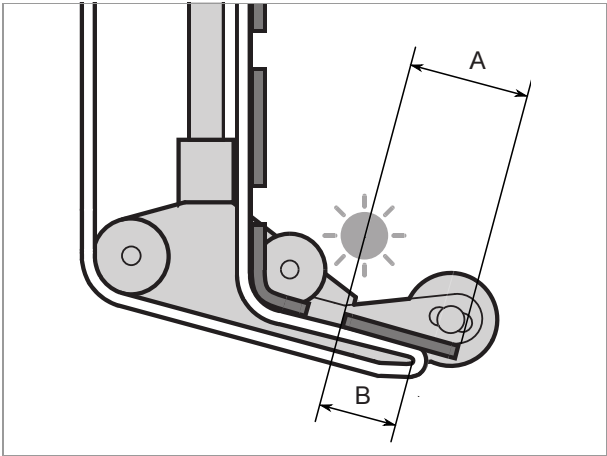
Information about suitable rotary encoders: see service manual.

**Label stop position**

**CAUTION!**

Mind the following setting rules to avoid a strong decrease of dispensing accuracy:

- At maximum dispensing speed set the Lab. stop offset to at least 10 mm! <sup>a</sup>
- Don't set Lab. stop offset to the same value as LABEL SETUP > Label pitch (also not to a multiple of the value).
- Don't set Lab. stop offset to „0“.
- Set Lab. stop offset so that the label sensor stands on top of the label as far as possible away from the label edge, when the label web stops.



[86] Label stop position (A)

a) General rule: The setting must at least equal the „brake distance“ of the label web until it stops. For high speed, this value is higher than for low speed.

Requirement: label pitch must be set

The next label to be dispensed is waiting in the label stop position. It is advantageous for the label to protrude a little over the dispensing edge [86].

**i**

The ALX 73x is preset for use with the label sensor included with delivery. If this light sensor is used, the setting of the label stop position needs to be corrected only slightly at most.

To correct the pre-setting:

1. Open LABEL SETUP > Lab. stop offset.
2. Increase the value to increase the overhang or decrease the value to decrease the overhang.

Setting	Effect
19 mm <sup>a</sup>	The label stops flush with the dispensing edge.
(19 mm + x)	The label stops with x mm overhang.

[Tab. 22] Special settings for Lab. stop offset.

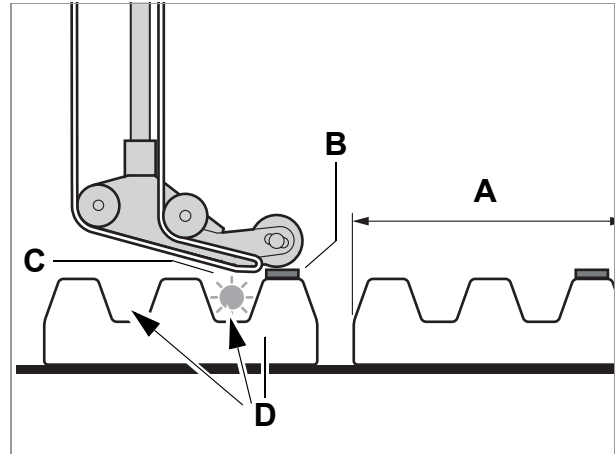
a) 19 mm = Distance [86B] between label sensor and dispensing edge (with fixed L-shape dispensing edge).

**Suppressing start signals**

The shape of the product or reflecting surfaces can cause a premature start signal, which will result in incorrect labelling. Start signals can therefore be ignored in cases such as these, while the product is being moved along under the dispensing edge. Function LABEL SETUP > Product length must be set to the product length for this purpose.

Example:

When the product [87D] reaches the product sensor [87C], a start signal is generated and the machine dispenses a label. The recesses in the product generate additional start signals, which could cause the product to be labelled more than once. The product length setting [87A] in function LABEL SETUP > Product length causes the machine to ignore all start signals until the product has passed the dispensing head.




[87] Labelling of products that generate multiple start signals.

- A Product length
- B Label
- C Product sensor
- D Product with recesses (arrows)

**Label position on the product**

Requirements:

- Label length is set
- Label stop position is set
- Setting in dispensing mode:

→ Set the start delay (also called start offset) with the two right keys (see **Online settings**  on page 45).

Or:

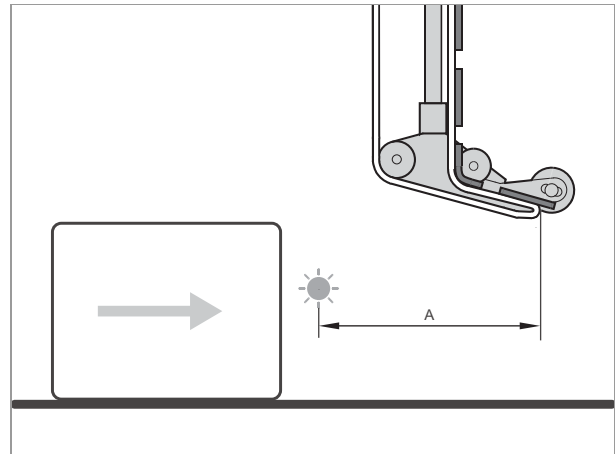
→ Open LABEL SETUP > Start offset and set the start delay.

The label should be flush with the front of the product:

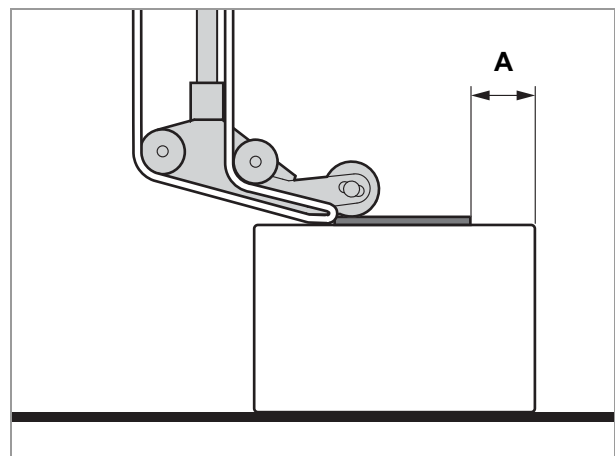
→ Enter the distance between product sensor and dispensing edge [88A].

The label should be applied at a distance from the front of the product:

→ Add the distance [89A] to the front of the product to the value for start delay.



[88] The distance between the product sensor (left) and the dispensing edge (right).



[89] The distance (A) between the label and the front of the product.



## Monitoring functions

During labelling operation, the electronic control unit monitors the following functions:

### Material end / roll diameter

(OD = outer roll diameter, PMA = printer, LMA = dispenser)

To facilitate quick and smooth changing of the material roll, the machine can send an alarm to operating personnel in advance before the end of the material roll. The OD sensor is used for this purpose. It is available in two designs.

Depending on the configuration and setting of the machine, different messages appear at material end or when a critical roll diameter is reached:

- No OD sensor

Message of the PMA at material end:

Status num:	5001
No gap found	

The PMA stops.

Message of the LMA, if the PMA doesn't continue to print:

Status num:	5153
PMA not ready	

- Internal OD sensor

The control unit is evaluating signals from two sensors that are integrated into the material dispenser.

Prerequisites:

- To be able to use the function, the two sensors must be connected to the machine with two external cables (accessories).
- The appropriate parameter for warning (MACHINE SETUP > Materialend warn) and/or error (MACHINE SETUP > Materialend err) must be activated at the LMA.

Message (warning) of the LMA, if the critical OD is reached:

ONLINE
Material low

Message (error) of the LMA, if the critical OD is reached:

Status num:	5071
Material end unw	

Additional (error) message, if no rotation of the material roll has been registered during at least 600 mm of material feeding (MACHINE SETUP > Materialend err is activated):

Status num: 5072  
Material end unw

- External OD sensor (accessory)

A sensor on the material dispenser switches when the roll diameter falls below a certain limit.

Prerequisites:

- External OD sensor is mounted
- (LMA) MACHINE SETUP > Ext. OD sensor = "Warning" or „Error“

Message (warning) of the LMA, if the critical OD is reached (MACHINE SETUP > Ext. OD sensor = "Warning")


ONLINE  
OD sensor warn.

Message (error) of the LMA, if the critical OD is reached (MACHINE SETUP > Ext. OD sensor = "Error")

Status num: 5111  
OD sensor error


If a *warning* occurs:

Label operation continues.


1. Press the  key to delete the warning.
2. Prepare for material change.

If an *error message* occurs:

The machine stops.

1. Press the  key to delete the message.
2. Remove wound backing paper.
3. Insert a new material roll.

### Ribbon roll diameter

The ribbon supply can be controlled via the ribbon roll diameter, see [Changing ribbon](#)  on page 81.

### Rewinder diameter

The diameter of the rewound backing paper is permanently controlled by the machine. If the critical diameter is reached, the following message appears:

Status num: 5064  
Rewinder full

The critical diameter is set by MACHINE SETUP > Rewinder full.


### Missing labels

Normally a missing label on the label web does not interfere with labelling operation. Label feed continues running until the start of a label has moved up under the label sensor again.

It may be necessary in some cases, however, to report the missing labels. When function LABEL SETUP > Miss. label. tol. is set, an error message can be generated after one, or not until after several missing labels:

Status num:	5001
No gap found	

At the same time the machine stops.

▮▮▮▮► Under unfavorable conditions, missing labels can lead to material tear at the linear dancer lever, see chapter **Material tear on the linear dancer lever**  on page 103.

## SETTING AND MONITORING THE PRINTER

### Settings in parameter menu

▮▮▮ The settings described below are generally included in the print job, in which case they do not need to be made. Manual settings that were made before a print job was transferred will be overwritten by the settings in the print job.

▮▮▮ For further details on setting options in the parameter menu, see section **Printer Parameter Menu** on page 63.

#### Label pitch

→ Switch to offline mode.

To measure label pitch automatically:

→ Press the FEED + PROG keys.

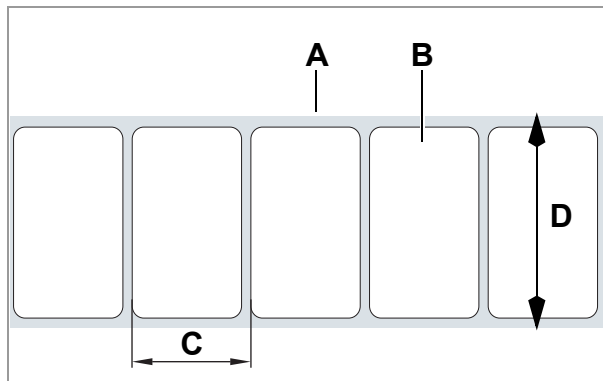
The printer moves the label material forward until the two label starting marks have moved through the label sensor. The label pitch determined in this way is displayed and transferred to parameter PRINT PARAMETERS > Materiallength. Parameter PRINT PARAMETERS > Materialtype is set to "Punched".

Display of the measured label pitch:



To enter the label pitch manually:

1. Measure label pitch [90C].
2. Navigate to PRINT PARAMETERS > Materiallength and enter the measured value in millimetres.



[90] Label material (self-adhesive labels)

**A** Label web (backing paper)

**B** Label

**C** Label pitch

**D** Material width

#### Material width

1. Measure the width of the material web [90D] (including backing paper).
2. Enter the measured value in millimetres.

#### Material type

1. Set PRINT PARAMETERS > Materialtype to "Punched".
2. For punched material: Set PRINT PARAMETERS > Light sens. type to "Punched". for material with reflex markings "Reflex".

### Print process

Direct thermal:

→ SYSTEM PARAMETER > Ribbon autoecon. = „Thermal printing“.

Thermal transfer:

→ SYSTEM PARAMETER > Ribbon autoecon. = „Disabled“.


### Reducing use of the printhead

Use of the printhead can be reduced in the thermal direct print process by raising it for extended sections with no printing.

→ SYSTEM PARAMETER > Ribbon autoecon. = „Thermal/headlift“.

### Ribbon saving

→ SYSTEM PARAMETER > Ribbon autoecon. = „On“ or „On Turbo“.

For details refer to chapter „Technical Data“ > **Automatic ribbon economy**  on page 22.

## Monitoring functions

### Missing labels

Normally a missing label on the label belt does not interfere with print operation. Label feed continues running until the start of a label has moved up under the label sensor again.

It may be necessary in some cases, however, to report the missing labels. When function SYSTEM PARAMETER > Miss. label tol. is set, an error message can be generated after one, or not until after several missing labels:

Status num:	5001
No gap found	

At the same time the machine stops.

### Ribbon reserve

To monitor the ribbon reserve, a critical diameter can be set for the ribbon roll. If the diameter falls below this level, the following - flashing - message appears:

FOILØ	X JOBS
-------	--------

→ Set SYSTEM PARAMETER > Foil end warning to the preferred ribbon roll diameter in millimetres.

## PRINTING

### Creating print jobs

There are two ways to create a print job:

- Layout software + printer driver
- Text file with Easy-Plug commands

#### Layout software + printer driver

Requirement: A printer driver must be installed on the PC.

Layout software may include any type of software that has a print function (for example text processing). Special label layout software is more suitable, for example NiceLabel <sup>1</sup>.

#### Text file + Easy-Plug

The label layout is described by a sequence of Easy-Plug commands saved in a text file.



### Installing the printer driver

You can find a Windows driver for the ALX 73x on the documentation CD included with delivery or on our web page <sup>2</sup>. The driver works with the following Windows operating systems: Vista / 7 / 8 / 8.1 / 10 / Server 2008 / Server 2008 R2 / Server 2012 / Server 2012 R2 (the driver will work with Windows XP too, but without any support).

CD installation:

1. Insert the documentation CD in the CD drive of the host PC.  
The CD starts automatically. It contains printer drivers for commonly used Windows operating systems.
2. In the "Printer Documentation" window, click on *Printer Drivers and Label Software > Install > Printer Drivers*.  
The installation wizard is launched.
3. Follow the instructions of the installation wizard.

### Transferring a print job

There are two ways to transfer a print job to the printer:

- via a data cable
- via a memory card

#### Data cable

Requirement:

- The database interfaces of the host PC and printer must be connected with a suitable data cable (Ethernet, RS 232 or USB)
- The database interface must be set accordingly in the printer's parameter menu

To use layout software:

1. Select a suitable database interface in the layout program.
2. Start printing.



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1) [www.nicelabel.com](http://www.nicelabel.com)

2) [www.novexx.com](http://www.novexx.com)

Sending a command file directly:

→ To open a Windows command line: START > PROGRAM FILES > ACCESSORIES > PROMPT.

To send via serial interface (COM1):

→ `copy testjob.txt com1.`

To send via USB or Ethernet interface:

→ `copy testjob.txt \\ComputerName\ShareName`, where



- ComputerName is the name of the computer (Windows XP: see START > SETTINGS > CONTROL PANEL > SYSTEM > COMPUTER NAME (for example "DM-ECH-0990").
- ShareName represents the share name for a printer connected to a specific port, such as the USB port or the TCP/IP port (Windows XP: see START > SETTINGS > PRINTERS AND FAXES, right-click on PROPERTIES > SHARE).

### Memory card

Requirements: Memory medium (memory card or USB stick) on which the printjob is stored in folder \formats.

1. Connect the memory medium to the printer.
2. Start the printer and switch to standalone mode.
3. Select printjob.

For further details see chapter **Standalone mode**  on page 55.

## USING PRODUCT PROFILES (DISPENSER)

### What are product profiles?

Product profiles are memory slots in which the complete setting of the dispenser unit can be saved. This makes it possible to adjust the dispenser to a given product quickly for recurring product orders.

Number of memory slots: 16

The memory slots are numbered. A text ID can also be entered for each memory slot (maximum 9 alphanumeric characters)

### Loading a product profile

#### CAUTION!

Incorrect settings may interfere with successful production and cause damage to the machine and system.

→ Product databases must only be set up by qualified, specially trained personnel.

→ Open function LABEL SETUP > Load prod. prof..

If no memory slot is assigned, the following message appears:




Load prod. profil  
No setup avail.

Only assigned memory slots are displayed.

If memory slots are assigned, the last memory slot to be loaded is displayed first:

Load prod. profil  
Prof 1 xxxxxx

Example above: The profile was saved in the first memory slot with text ID "xxxxxx".

1. Press the  or  keys until the required profile appears.
2. Press the  key to load the profile.

Then the machine is restarted.

Display after restart:

Prof 1 xxxxxx  
Label 0

("ONLINE" is replaced by the current profile name in dispensing mode.)



## Saving a product profile

### Selecting a memory slot

→ Open function MACHINE SETUP > Store prod. prof..




Display if all memory slots are free:

Store prod. prof.  
Prof 1 product 1

If memory slots are assigned, the memory slot that was last active is displayed:

Store prod. prof.  
Prof 5\*Customer\_xyz

A "\*" after the memory slot number indicates that the memory slot is already assigned (in this case the profile "Customer\_xyz")

1. Press the  or  keys until the required memory slot (1-16) is reached.
2. Press the  key to activate the memory slot.

The profile name flashes and can be replaced by a user-selected text.

### Enter the profile name

To accept the profile designation "Product 1" with no changes:

→ Press the  key 2x.

The profile is now saved.

Screen:

Store prod. prof.  
Storing...





To change the profile designation:

→ Press the  key.

Screen:

Store prod. prof.  
Prof x \_

The underscore marks the active position.

1. Press the  or  keys or scroll through the character set until the required character appears.
2. Press the  key to accept the character.  
The underscore jumps to the next character.
3. Enter the next character in the same way.
4. After the last character press the  key.

The profile is now saved.

Screen:




Store prod. prof.  
Storing...

The product profile has now been saved.

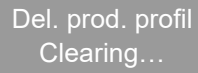
## Deleting a product profile

1. Open function MACHINE SETUP > Del prod. profil.

The last memory slot that was active is displayed.

2. Press the  or  keys until the required memory slot (1-16) is reached.
3. Press the  key to delete the memory slot:

Screen:



Del. prod. profil  
Clearing...

The product profile has now been deleted.

# Operating faults

## MATERIAL TEAR

### Status messages in case of material tear

If the material ribbon tears, one of the following messages appears. Which message appears depends on which spot in the material ribbon is torn.

- *Dispenser* message:

Material tear between dispenser and rewinder:

Statusnum:	5140
Aufwickl.Steuer.	

Material tear at linear dancer arm (see chapter below):



Statusnum:	5070
LDU Obere Limit	

- *Printer* message:

Statusnum:	5002
Materialende	

The machine stops.

### Repairing material tear

1. Press the  key to acknowledge the message.
2. Connect the material ends (see chapter [Replacing a label roll](#)  on page 79), or refeed the label web.

### Material tear on the linear dancer lever

Under certain operating conditions it may happen that the label belt tears on the linear dancer lever. These unfavourable conditions can be characterised as follows:

- High dispensing speed
- Low print speed
- Long labels
- One or more missing labels on the label belt

The following sequence will result in a material tear: As soon as the place with the label gap reaches the label sensor on the dispensing edge, feed starts until the start of the next label. If the linear dancer lever reaches the lower final position before the start of the next label has been detected, there is a high probability the belt will tear.

Remedy:

→ Change one or more of the conditions above.

→ Set missing label tolerance on the printer to "0"; see section [Missing labels](#)  on page 97.

This will cause the machine to stop with an error message if a missing label is discovered.

## STATUS MESSAGES ON THE DISPENSER

### Error messages


When an error occurs, the dispenser stops immediately and shows an error message on the control panel.

Error messages are based on the following outline:

Status num: 5144 <sup>a</sup>  
Rewinder init <sup>b</sup>


- a) 5144 = The status number. This number is an easy way to identify the message.
- b) "Rewinder init" = Status text; brief description of the error.

To delete an error message:

1. Rectify the cause of the fault. For further details see section [List of error messages](#) on page 107.
2. Press the  key to delete the message.

Error messages that are *not* described below can only be rectified by qualified service personnel.

If an error that is not described here occurs:

1. Press the  key to delete the message.
2. Switch off the device, wait for 30 seconds and switch it on again.

If the error occurs repeatedly:

→ Call in a service technician.



Error messages *not* mentioned here are described in the service manual.

While an error message is being displayed, the "Error" signal output is active.

### Warnings

Warnings refer to states less critical than error messages.

Labelling operation is not interrupted by a warning.

Warnings may occur in dispensing mode or in online settings mode.

Warnings are based on the following outline:

ONLINE  
Material warning <sup>a</sup>

- a) "Material warning" = brief description depending on what triggered the warning.



While a warning is being displayed, the "Warning" signal output is active.


**Reset warnings**

A warning is displayed until...

- the cause of the warning has disappeared
- or
- the warning has been reset

➡ Warnings can only be reset in online mode. If the warning occurs in online setting mode or standalone mode, the user must switch to online mode before resetting the warning.

To reset a warning in online mode:

➡ Press the  key.



It is also possible to reset warnings with Easy-Plug command #!CLRW.

➡ If several warnings are active simultaneously, the warning with the highest priority is displayed first. When it has been confirmed the next one is displayed, and so forth.

## REFERENCE STATUS MESSAGES - DISPENSER

### List of warnings


---

#### Productstartwarn

- ⊗ New start signal during the dispensing cycle. The contour of the product is resulting in multiple start signals.  
→ Activate LABEL SETUP > Product length.
- ⊗ Several missing labels on the label belt; unable to compensate for the gap.  
→ Check the label material.

---

#### PMA warning

- ⊗ The printer (PMA) has stopped or an error has occurred on the printer.  
The warning shows up before the error message „PMA not ready“, **5153**  on page 111.  
→ Check the printer.

---

#### Material low

- ⊗ (Internal OD sensor) critical material roll diameter reached.  
→ Prepare for material change

---

#### APSF speed warn.



- ⊗ The speed of the conveyor belt has exceeded the maximum speed of the dispenser.  
→ Reduce the speed of the conveyor belt.

---

#### OD sensor warn.

- ⊗ (External OD sensor) critical material roll diameter reached.  
→ Prepare for material change

---

#### Toomany products



- ⊗ Each product triggers more than one start signal.  
→ Activate LABEL SETUP > Product length.  
→ Verify, if there are other causes which trigger start signals (e.g. reflections). If yes, eliminate those causes.
- ⊗ Too many products are between product sensor and dispensing edge (>64). The buffer for product start signals is about to overflow.  
→ Move the product sensor closer to the dispensing edge.
- ⊗ The resolution of the rotary encoder is set wrong.  
→ Verify, if the conveyor speed matches the speed which is displayed on the operator panel. If not, correct the resolution setting of the rotary encoder.

---

**Int. mod. synch**

⊗ Although communication between printer and dispenser has been interrupted, labels can currently still be dispensed from the buffer loop.

→ Check the connection line; see status message **5068**  auf Seite 109.

---

**Module speed**

⊗ The printer is printing too slowly. Start signals must therefore be left out.

→ Increase the print speed or reduce the dispensing speed/dispensing rate.

---

**Foil low**


⊗ Critical foil roll diameter at the printer reached.

→ Prepare for foil roll change

---

**Loop empty**


⊗ The buffer loop of the linear dancer arm is empty. Currently, there is no label available from the loop.

The dancer arm has moved out of the control position. The warning precedes the warning „LDU lower limit“, see error **5069**  on page 110. The warning has the same causes as the error message.

---

**Tandem Synch.**

⊗ Communication between master and slave machine is not working.

The warning can for example show up shortly after switching the machine on, when the communication between the machines is *not yet* established. If the communication is *still* established within 5 minutes after the warning showed up, the warning will disappear, otherwise, after the 5 minutes are over, the error message „Tandemsynch.init“ will appear, see **5147**  on page 111. The warning has the same causes as the error message.

---

**List of error messages**

---

**5000****Bus device**

This message appears in most cases as the first of a series of two or three messages that more closely limit the source of the error.

⊗ Unable to access device on the I<sup>2</sup>C bus.

→ Delete the message after pressing the  key.

→ Switch off the machine, wait for 30 seconds and switch it on again.

→ If the error message occurs repeatedly, call in a service technicians.

---

**5001****No gap found**

No punches were found


The label sensor has not found any label gap or punch.

⊗ Material end (if no roll diameter sensor is activated).

→ Insert material.

⊗ The limit value for missing labels has been exceeded (LABEL SETUP > Miss. label tol.).

→ Check the label material.

- ⊗ Label type is not set correctly (MACHINE SETUP > Label sens. type).  
→ Check/change setting.
- ⊗ The label length is not set correctly (LABEL SETUP > Label pitch).  
→ Check/change setting.
- ⊗ Label sensor is dirty.  
→ Clean the label sensor.
- ⊗ Label sensor is not in the correct position.  
→ Check/change the position of the label sensor.
- ⊗ Label sensor is not correctly connected.  
→ Check whether the label sensor is plugged into the correct connection.
- ⊗ Label sensor is faulty.  
→ Replace the label sensor.
- ⊗ Rotary encoder is not correctly connected.  
→ Check/change the rotary encoder settings.
- In all cases: Press the  key to confirm the error message.



---

**5002 Material end**

- ⊗ Material end (if the internal OD sensor is connected and activated).  
→ Insert a new label roll.
- ⊗ Internal OD sensor is *not* connected, but is activated.  
→ To deactivate the internal OD sensor: MACHINE SETUP > Materialend err = „Off“.

---

**5030 MotorProtectFeed**

- ⊗ Dust filter fleece dirty. This will cause the machine to overheat.  
→ Replace the dust filter fleece. Allow the machine to cool off.
  - ⊗ Motor driver board overheated or faulty  
→ Switch off the machine, wait for 30 seconds and switch it on again.
- If the error message occurs repeatedly:  
→ Call a service technician.

---

**5031 MotorProtectRew.**

- ⊗ Dust filter fleece dirty. This will cause the machine to overheat.  
→ Replace the dust filter fleece. Allow the machine to cool off.
  - ⊗ Motor driver board overheated or faulty  
→ Switch off the machine, wait for 30 seconds and switch it on again.
- If the error message occurs repeatedly:  
→ Call a service technician.

---

**5064 Rewinder full**

- ⊗ The critical roll diameter on the backing paper rewinder is reached (settable by MACHINE SETUP > Rewinder full)  
→ Empty the unwinder.

---

**5067 L.DancArm Sensor**

- Linear dancer lever sensor  
Bad connection to the dancer lever sensor.
- ⊗ Sensor cable is not connected.  
→ Connect the sensor cable.
  - ⊗ Sensor cable is faulty.  
→ (Service) Check the sensor cable and if necessary replace it.

---

**5068 Int. mod. synch**

- Communication between printer and dispenser has been interrupted.
- ⊗ The printer is switched off.  
→ Switch on printer
- If the message still shows up when the printer is switched on:  
→ Call a service technician.

---

**5068 Int. mod. synch**

- Communication between printer and dispenser has been interrupted.
- ⊗ The printer is switched off.  
→ Switch on printer

- ⊗ The connector cable between printer and dispenser is damaged or not connected.
- Check the connector cable between printer and dispenser and replace it, if necessary.

---

**5069 LDU lower limit**

The linear dancer lever has reached the lower limit stop.

- ⊗ Dispensing speed and/or dispensing rate are too high relative to the print speed.
- Increase the print speed
- Reduce dispensing speed
- Reduce the dispensing rate (number of labels dispensed per unit of time)
- ⊗ Linear dancer lever sensor is not connected.
- (Service) Check the sensor cable.
- ⊗ Sensor cable of the linear dancer lever sensor is faulty.
- (Service) Replace sensor cable.

---

**5070 LDU upper limit**

The linear dancer lever has reached the upper limit stop. This causes the printer to stop.

- ⊗ The material ribbon is torn.
- Insert new label material.
- If this error occurs repeatedly reduce the spring tension of the linear dancer arm.
- ⊗ Linear dancer lever sensor is not connected.
- Check the sensor cable.
- ⊗ Sensor cable of the linear dancer lever sensor is faulty.
- Replace sensor cable.

---

**5071 Material end unw**

- ⊗ Regards the internal OD sensor. The message appears, if the material roll diameter has reached the critical value (setable by MACHINE SETUP > Materialend err).
- Replenish the material roll.

---

**5072 Material end unw**

- ⊗ Regards the internal OD sensor. The message appears, if no rotation of the material roll has been registered during at least 600 mm of material feeding.
- Check the material feeding; if necessary, replenish the material roll.

---


**5111 OD sensor error**

- ⊗ Regards the external OD sensor. The material roll diameter has reached the critical value (required setting: MACHINE SETUP > Ext. OD sensor = „Error“). The label material will soon be gone.
- Prepare to insert a new material roll

---

**5140 Rewinder control**

During problem-free operation the rewinder dancer lever moves only minimally around the "control position". This is the position the dancer lever assumes after the machine is initialised.

- ⊗ The dancer lever is moved by the effect of a force from outside the control position.
- Press the  key.

The dancer lever controller is then reinitialised. The dancer lever moves back to the control position.

Example: feed motor blocked; the backing paper is not moved quickly enough; this causes the dancer lever to be drawn upward.

Example: tearing of the backing paper; the dancer lever moves back down by spring force.

---

**5143 Rewinder stop**

The rewinder dancer lever is no longer able to move. Therefore the rewinder motor is switched to a powerless state.



This can be selectively used to insert a new label roll because the rewinder can easily be turned when the motor is switched off.

⊗ The dancer lever was held at the upper limit stop for longer than two seconds.

→ Press the  key to confirm the error message.

---

**5145 Rewinder full**

⊗ The maximum permissible diameter of the rewinder roll has been reached.

→ Remove wound backing paper

→ Press the  key to confirm the error message.



This error can only occur if the end of a new label roll has been pasted onto a backing paper that is already wound around the rewinder.

---

**5147 Tandemsynch.init**

Initialization of tandem synchronisation



This message can only occur in tandem operation mode at the *master* machine.

⊗ Communication between master and slave machine is not working.

→ Check the tandem interface cable (cable present and correctly connected?).

→ Check the settings on both machines.

---

**5148 Tandemsynch.init**

Initialization of tandem synchronisation



This message can only occur in tandem operation mode at the *slave* machine.

⊗ Communication between master and slave machine is not working.

→ Check the tandem interface cable (cable present and correctly connected?).

→ Check the settings on both machines.

---

**5152 Winding direct.**

⊗ The backing paper was incorrectly fastened on the rewinder core.

→ Fasten the backing paper on the rewinder as described in the operating manual.

⊗ Wrong machine type set (MACHINE SETUP > Dispenser type)

→ "RH" setting on LH machine or vice versa.

---

**5153 PMA not ready**

⊗ The printer (PMA) is offline or an error has occurred.

→ Check the printer

---

**5200 Home position**

The applicator has not reached its home position (upper limit stop) within the assigned time period. This message can only occur in applicator mode.

⊗ No applicator present, but applicator mode is set.

→ Set SIGNAL INTERFACE > Interface mode to "PLC interface".

- ⊗ Applicator is jammed  
→ Eliminate the obstruction
- ⊗ Compressed air applicator: compressed air supply is interrupted or switched off  
→ Check the compressed air connection and if necessary connect it correctly
- ⊗ Cable not correctly connected.  
→ Check the cable and if necessary connect it correctly.

**5201****Touch down**

The applicator has not reached its lower end position (touch down) within the assigned time period. This message can only occur in applicator mode.

- ⊗ No applicator present, but applicator mode is set.  
→ Set SIGNAL INTERFACE > Interface mode to „PLC signals“.
- ⊗ Applicator is jammed  
→ Eliminate the obstruction
- ⊗ Compressed air applicator: compressed air supply is interrupted or switched off  
→ Check the compressed air connection and if necessary connect it correctly
- ⊗ Cable not correctly connected.  
→ Check the cable and if necessary connect it correctly.

**6002****New prog. vers.**

- ⊗ New firmware has been loaded. The dispenser is reporting by way of this message that new firmware is present.  
→ Press the online key to confirm.
- All parameters are reset to the factory setting.

**6030****New parameters**

- ⊗ New firmware has been loaded, which has caused new functions to be added to the menu.  
→ Press the online key to confirm.
- The system is restarted.  
All parameters are set to the factory setting.

**6207****No file card**

- ⊗ No memory card was found.  
→ Check to see whether a memory card is inserted. If the memory card was not inserted until after the machine was switched on: Turn the machine off and on again.

**9022****No network link**

This status message can only occur if the Ethernet address assignment is set to DHCP (INTERFACE PARA > NETWORK PARAM. > IP Addressassign).

- ⊗ Network plug not correctly connected.  
→ Check whether the network plug is correctly connected and correct it if necessary.

## STATUS MESSAGES ON THE PRINTER

### Error messages


When a fault occurs, the printer shows an error message on the control panel.

Error messages are based on the following outline:

PrintStatus: <sup>a</sup> 5144 <sup>b</sup>  
Rewinder init <sup>c</sup>


- a) Depending on the cause of the error, "PrintStatus:" or "QueueStatus:" appears here. "PrintStatus:" = message from the printer controller; "QueueStatus:" = message from the Easy-Plug Interpreter.
- b) 5144 = The status number. This number is an easy way to identify the message.
- c) "Rewinder init" = Status text; brief description of the error.

To delete an error message:

1. Rectify the cause of the fault. For further details see section [List of error messages](#) auf Seite 107.
2. Press the  key to delete the message.

Error messages that are *not* described below can only be rectified by qualified service personnel.

If an error that is not described here occurs:

1. Press the  key to delete the message.
2. Switch off the device, wait for 30 seconds and switch it on again.

If the error occurs repeatedly:

→ Call in a service technician.



Error messages *not* mentioned here are described in the service manual.

While an error message is being displayed, the "Error" signal output is active.

## REFERENCE STATUS MESSAGES - PRINTER

### List of error messages

5001	<p><b>No gap found</b></p> <p>The label sensor has not found a label starting mark (punch or reflex marking).</p> <ul style="list-style-type: none"> <li>⊗ Incorrect setting of the material type. → Check to ensure the setting of PRINT PARAMETERS &gt; Materialtype matches the label material you are using.</li> <li>⊗ Incorrect sensor type set (SYSTEM PARAMETER &gt; Label sens. type). → Check to ensure the set sensor type matches the label material (punches or reflex markings).</li> <li>⊗ Incorrect label material inserted (material does not match the setting in PRINT PARAMETERS &gt; Materialtype) → Check the label material.</li> <li>⊗ Incorrect position of label sensor. → Check/correct position of label sensor.</li> <li>⊗ Material guide not set correctly - the label starting marks are running past to the side of the label sensor. → Check/correct the material guide setting.</li> <li>⊗ Label sensor is dirty. → Clean the label sensor.</li> <li>⊗ The sensitivity of the label sensor is set too low. Materials with weak contrast between the material and backing paper or between the reflex marking and the material require increased sensor sensitivity. → Increase the sensitivity.</li> <li>⊗ Punch definition, material type and/or material length are specified incorrectly in the print job. → Check the print job.</li> </ul> <p>After confirmation with the online key, the material is automatically fed forward and the system searches for the next punch.</p>
5002	<p><b>Material end</b></p> <p>There is no more material in the material sensor.</p> <ul style="list-style-type: none"> <li>⊗ Label roll is used up. → Insert a new label roll.</li> <li>⊗ Material guide not set correctly - the label starting marks are running past to the side of the label sensor. → Check/correct the material guide setting.</li> </ul>
5003	<p><b>Cover open</b></p> <ul style="list-style-type: none"> <li>⊗ The front cover of the printer is open. → Close the front cover.</li> </ul> <p>Closing the front cover automatically deletes the error message.</p>
5008	<p><b>Foil end</b></p> <p>In thermal printing:</p> <ul style="list-style-type: none"> <li>⊗ Ribbon end sensor is <i>not</i> switched off. → SYSTEM PARAMETER &gt; Ribbon autoecon. = „Thermal printing“.</li> </ul>



In thermal transfer print:

⊗ Ribbon roll is used up.

→ Insert a new ribbon roll.

⊗ The core of the ribbon roll is resting loosely on the dispenser.

→ Use a ribbon roll with a suitable core diameter.

→ Adjust the spring plate on the ribbon unwinding mandrel so that the ribbon core is firmly seated.



---

**5063 Press roll**

⊗ The lever of the label material pressure roller (green lever) is open.

⊗ (DPM) The lever of the backing paper feed roller (red lever) is open.

⊗ (PEM) The lever of the label material pressure roller (green lever) is open.

→ Close the lever.

Closing the pressure roller automatically deletes the error message.

---

**5071 Material end unw**

⊗ Regards the internal OD sensor. The message appears, if the material roll diameter has reached the critical value (setable by MACHINE SETUP > Materialend err).

→ Replenish the material roll.

---

**5072 Material end unw**

⊗ Regards the internal OD sensor. The message appears, if no rotation of the material roll has been registered during at least 600 mm of material feeding.

→ Check the material feeding; if necessary, replenish the material roll.

---

**5110 Foil low**

⊗ The diameter of the ribbon roll has reached the value set under SYSTEM PARAMETER > Foil end warning.

→ Prepare to change the ribbon roll.

# Cleaning

## CLEANING INSTRUCTIONS

### Safety

**WARNING!**

Dangerous situations may arise during maintenance and cleaning work. Accidents may occur due to mechanical or electrical effects if the relevant safety instructions are not observed!

- Switch off the device before cleaning or maintenance and pull out the mains power connecting line!
- Never allow liquid to get into the machine!
- Do not spray the machine with spray bottles or sprays! Use a cloth wetted with cleaning agent.
- Repairs to the machine must only be made by trained service technicians!

### Cleaning agents

**CAUTION!**

Sharp cleaning materials may damage the printer.

- Do not use any cleaning agents or materials that could damage or destroy the paint finish, labelling, display, type plates, electrical component, etc.
- Do not use any scouring cleaning agents or any cleaning agents that could dissolve plastic.
- Do not use acid or alkaline solutions.

Part to be cleaned	Cleaning agent	Order No.
Printhead	Cleaning stylus	95327
	Cleaning paper	5030
Rubber rollers (print roller, pressure roller, etc.)	Roller cleaner	98925
Deviator rollers	Cleaning solvent, alcohol, isopropyl alcohol	--
	Label release spray	90073
Housing	Standard commercial neutral cleaning agent	--

[Tab. 23] Recommended cleaning agents:

### Cleaning interval

- Clean machine regularly.

The frequency depends on the following factors:

- Operating conditions
- Daily operating duration
- Label material/ribbon combination used



## GENERAL CLEANING

Dust particles are especially likely to accumulate in the area of the print mechanics.

- Remove dust particles with a soft brush or a vacuum cleaner.
- Clean the housing with a cloth and a standard commercial neutral cleaner.

## PRINthead

### General notes

The thermal head [92A] and its holder [92C] are referred to together as the printhead [91].

**CAUTION!**

Danger of irreversible adjustment of the printhead position.

→ Never loosen the screws [91A] on the printhead.

→ If a print head ever becomes misaligned, remove the entire printhead and send it in to us for realigning.

**CAUTION!**

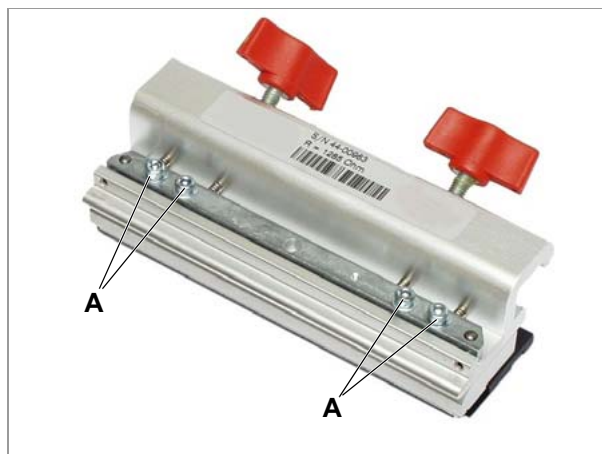
Electrostatic discharge or contact with sharp edges can damage the printhead!

→ Always protect the printhead against electrostatic discharge when performing maintenance and cleaning work!

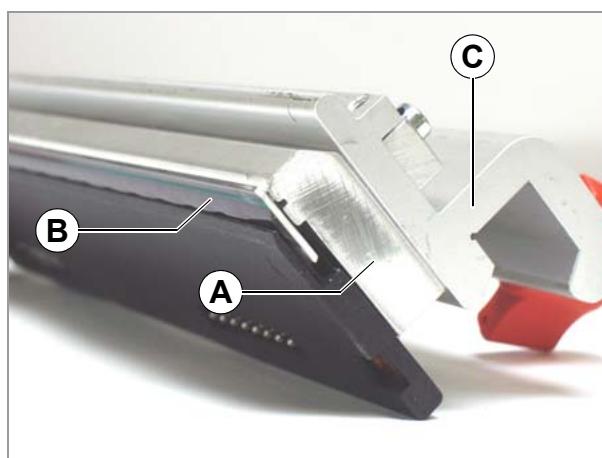
→ Never touch the thermal strip [92B] with bare hands!

→ Never contact the thermal strip with sharp objects!

► If you do not have suitable ESD protective gear (ESD arm band, ESD shoes, etc.), touch a grounded object (e.g. radiator) to discharge any static electricity before touching the printhead!



[91] Printhead



[92] Printhead

- A Thermal head
- B Thermal strip
- C Holder for thermal head

## Cleaning the printhead

**WARNING!**

Burn hazard! The printhead can become hot during operation.

→ Be careful whenever touching the printer.

Paper dust and coloured particles from the thermal transfer ribbon may collect on the printhead during printing. Over time, this can significantly impair the printing quality in the following ways:

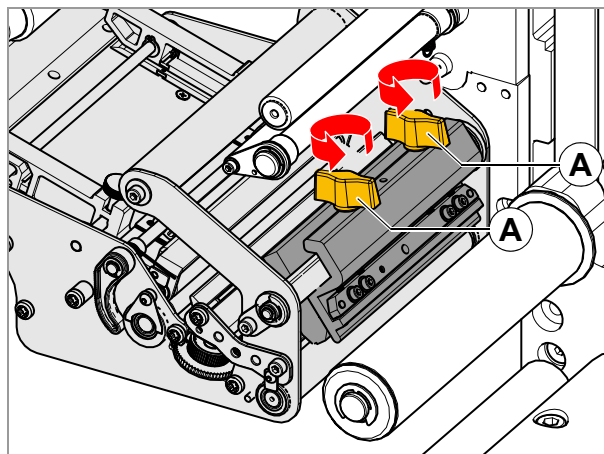
- Contrast differences in label
- Bright strips in printing direction

### Cleaning interval

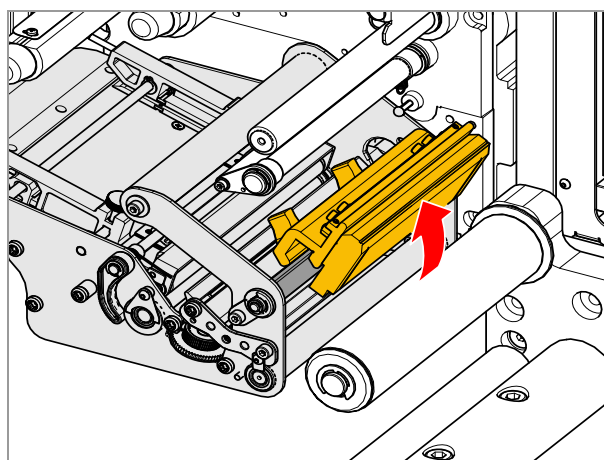
- Thermal transfer print: every time the ribbon roll is changed
- Thermal direct print: every time the label roll is changed

### Preparing the printhead

1. Switch off the machine.
2. Unplug the mains power connecting line.
3. Remove the label material and ribbon.
4. Remove both wing bolts [93A] until the printhead can be swivelled up.
  - ▮ Before swivelling the printhead up, shift it about 1 cm towards the middle of the axle.
  - ▮ If the printhead is not at the limit stop on the side, mark the position on the axle in advance.
5. Rotate the printhead up [94].



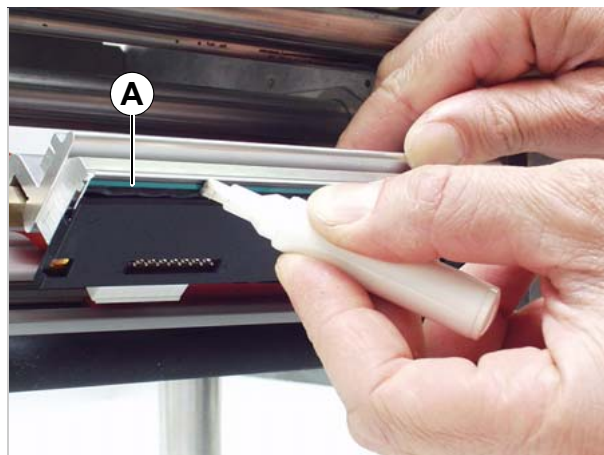
[93] Loosen the wing bolts (A) on the printhead.



[94] Rotate the printhead up.

**Cleaning with a cleaning stylus**

→ Run the stylus many times back and forth across the thermal strip [95A] of the printhead.

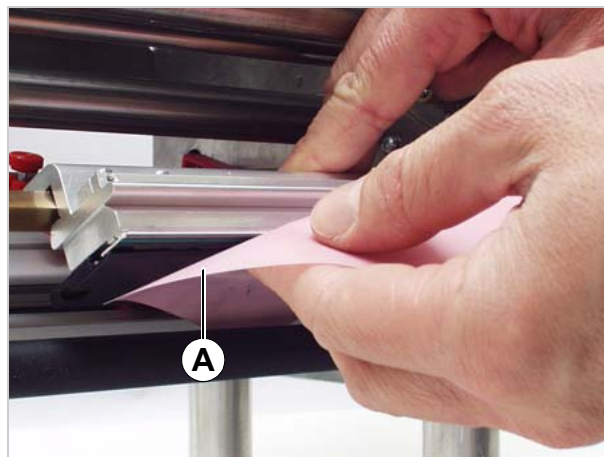


[95] Clean the printhead with the cleaning stylus.

A Thermal strip

**Using a cleaning strip**

→ Rub the rough side of the cleaning strip [96A] many times back and forth across the thermal strip of the printhead. As you do so lightly press the cleaning strip with your hand.



[96] Clean the printhead with the cleaning strip.

**Using alcohol:**

→ Moisten a lint-free cloth with alcohol and wipe the cloth across the thermal strip of the printhead [97].

**Fasten the printhead in place again**

1. After cleaning, move the printhead holder back to its former position and retighten the wing bolts.
  - ▮ The wing bolts must press against the chamfer of the square axle.
  - ▮ Ensure that the printhead is properly positioned relative to the label edges.Factory set printhead position: at the limit stop on the inside of the black plastic bushing.
2. Before turning on the unit, always check whether the printhead cable has been properly plugged. If not, be sure to plug it in correctly.



[97] Clean the printhead with alcohol.

## Replacing printheads

The printhead can only be replaced as a complete unit as shown in [102A].



### WARNING!

Burn hazard! The printhead can become hot during operation.

→ Be careful whenever touching the printer.

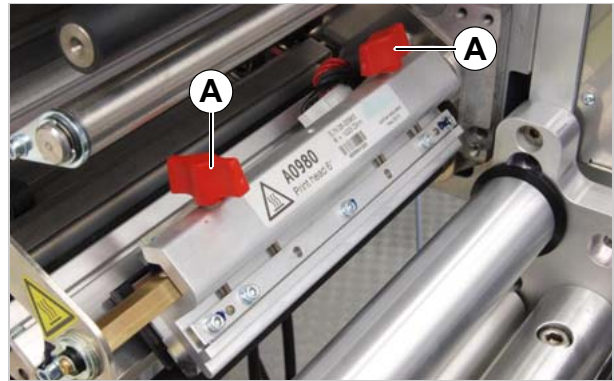
1. Switch off the machine.
2. Remove the mains power connecting line.
3. Remove the material and ribbon.
4. Pull out both plugs [100A,B] on the printhead. [99].
  - ▮▮▮ After switching off machine, wait at least 3 minutes before unplugging the printhead cable.
  - ▮▮▮ If the printhead is not at the limit stop on the side, mark the position on the axle in advance.
5. Remove both wing bolts [98A] until the entire printhead can be removed from the pressure shaft.
6. Install the new printhead at the former position and retighten the wing bolts.

Factory set printhead position: at the limit stop on the inside of the black plastic bushing.

▮▮▮ The wing bolts must press against the chamfer of the square axle.

▮▮▮ Pay close attention to the position of the printhead in relation to the edge of the label.

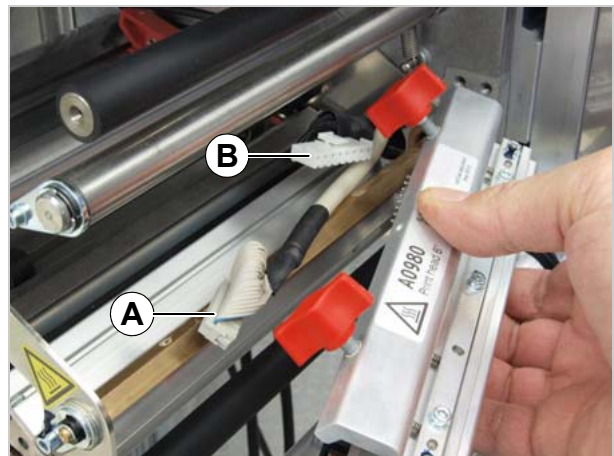
7. Plug the printhead cables back into the printhead.
- Continued on next page.



[98] Printhead in the ALX 736.



[99] Pull out the connection cable.



[100] Remove the printhead.



[101] Lay the connection cable so that it does not touch the ribbon.



8. The resistance of the new printhead can be entered using the SYSTEM PARAMETER > Head resistance parameter.

▮▮▮▮ The resistance is given on the printhead sticker [102 B].

**CAUTION!**

Entering the wrong resistance can damage the printhead!

→ Enter the resistance that is applied against the *installed* printhead.



[102] Printhead (A) with resistance identification (B), in this case: 1221 Ohm.

## Testing the printhead

The printer is equipped with a test function that checks the functionality of each single dot.

### Dot check with status report

→ Open SERVICE FUNCTION > Head dot test.

A status report is generated after the dot check to provide information about the number and position of any dots that may be faulty.

### Dot check with display message

→ Press the apply + feed keys.

Message indicating a faulty dot:

Status:	5103
Dot defective	

▮▮▮▮ If all dots are fault-free, no message appears.

▮▮▮▮ If an error message occurs, the current print job is stopped.

### Duration of the dot check

The entire check can last from 10 s to several minutes depending on the printhead (the wider the printhead and the more defective dots, the longer the duration) of the check.

### Interrupting the dot check

**CAUTION!**

Danger of destroying individual dots on the printhead.

→ Never quit a dot check by turning off the unit!

→ Press the feed+cut+online keys.

▮▮▮▮ To cancel the dot check in situations where it is absolutely necessary, reset the unit!

## RUBBER ROLLERS

### Feed rollers/print roller

Printer:

The feed roller [103A] and print roller [103B] can be cleaned from the bottom of the machine without any additional assembly work. The ribbon roller [103D] is freely accessible while the cover is open and the ribbon is removed.

Dispenser:

The feed roller [103C] is freely accessible when the label material has been removed.

Cleaning the rollers:

1. Switch off the machine.
  2. Remove the mains power connecting line.
  3. Remove the material and/or ribbon.
  4. Wipe off the rollers with a dust-free cloth and roller cleaner.
- ➡ Rotate the roller step for step until it is completely clean.

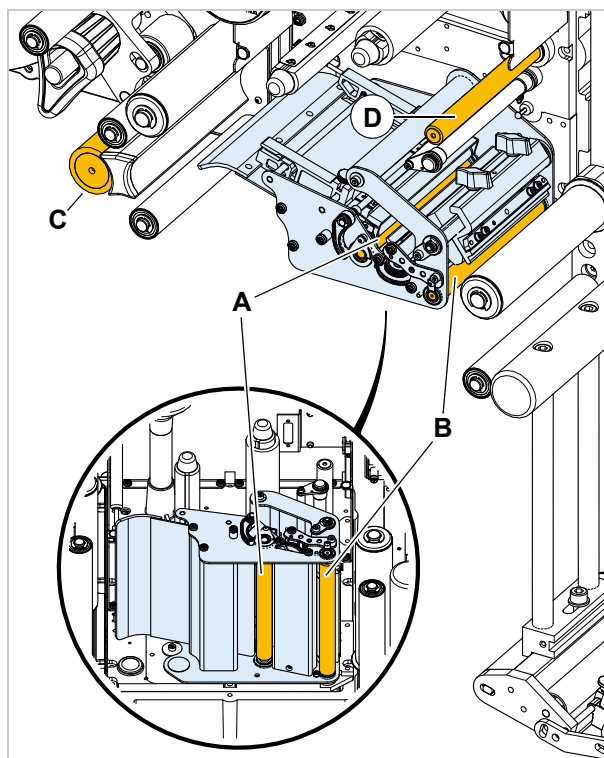
**CAUTION!**

Danger of damaging the roller.

➡ Never use knives or sharp objects to clean the rollers!

➡ It is also possible to clean the print roller from the front. To do this remove the printhead.

See **Replacing printheads** □ on page 121.



[103] Positions of the rubber rollers:

- A Feed roller (printer)
- B Print roller
- C Feed roller (dispenser)
- D Ribbon feed roller (printer)



## Pressure roller

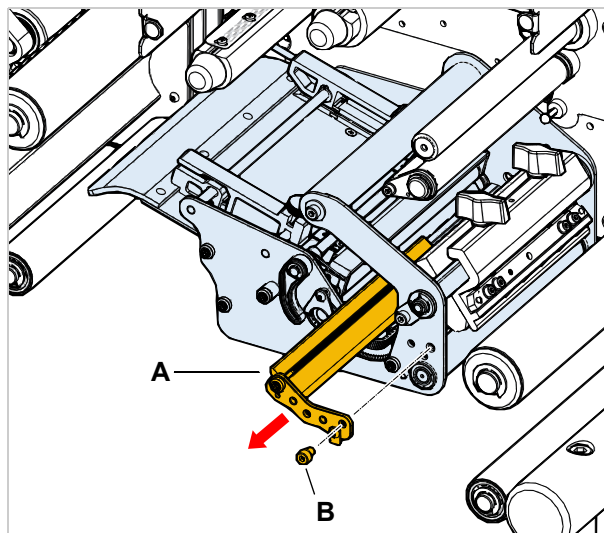


### WARNING!

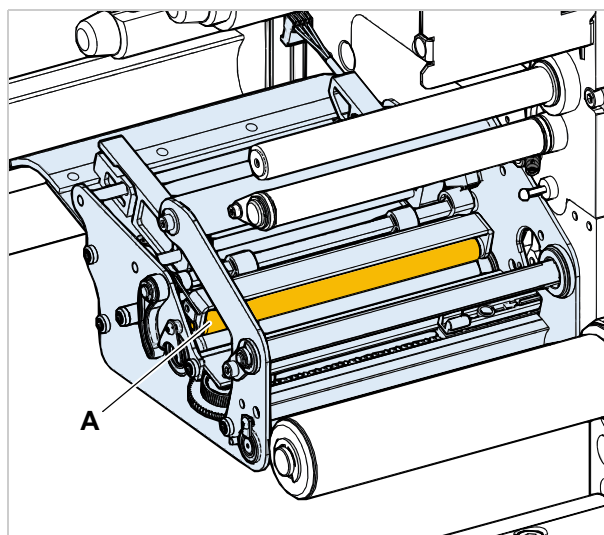
Burn hazard! The printhead can become hot during operation.

→ Be careful whenever touching the printer.

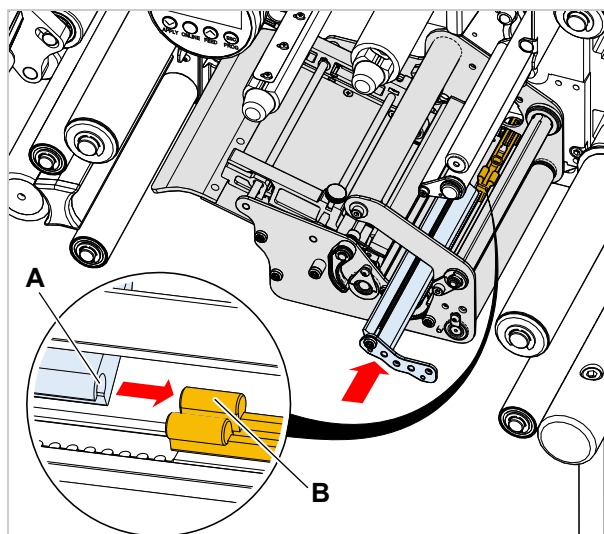
1. Switch off the machine.
2. Remove the mains power connecting line.
3. Remove the material and ribbon.
4. Remove the bolt [104B] (using 3 mm Allen key).
5. Remove guide section [104A] from side.
6. If printhead does *not* move into position at far left or right of printhead axis: Mark position of printhead on axis.
7. Remove the printhead; see **Replacing printheads**  on page 121.
8. Wipe off the pressure roller [105A] using a lint-free cloth and roller cleaner (part no. 98925). Rotate the roller step for step until it is completely clean.
9. Reinstall the guiding section and fasten it with the bolt.  
 Push the guiding section with the groove [106A] over the rear guide tab on the sensor arm [106B].
10. Reinstall the printhead at its former position.



[104] Remove the guiding section (A).



[105] Position the pressure roller (A) in the printer (guiding section and printhead removed).



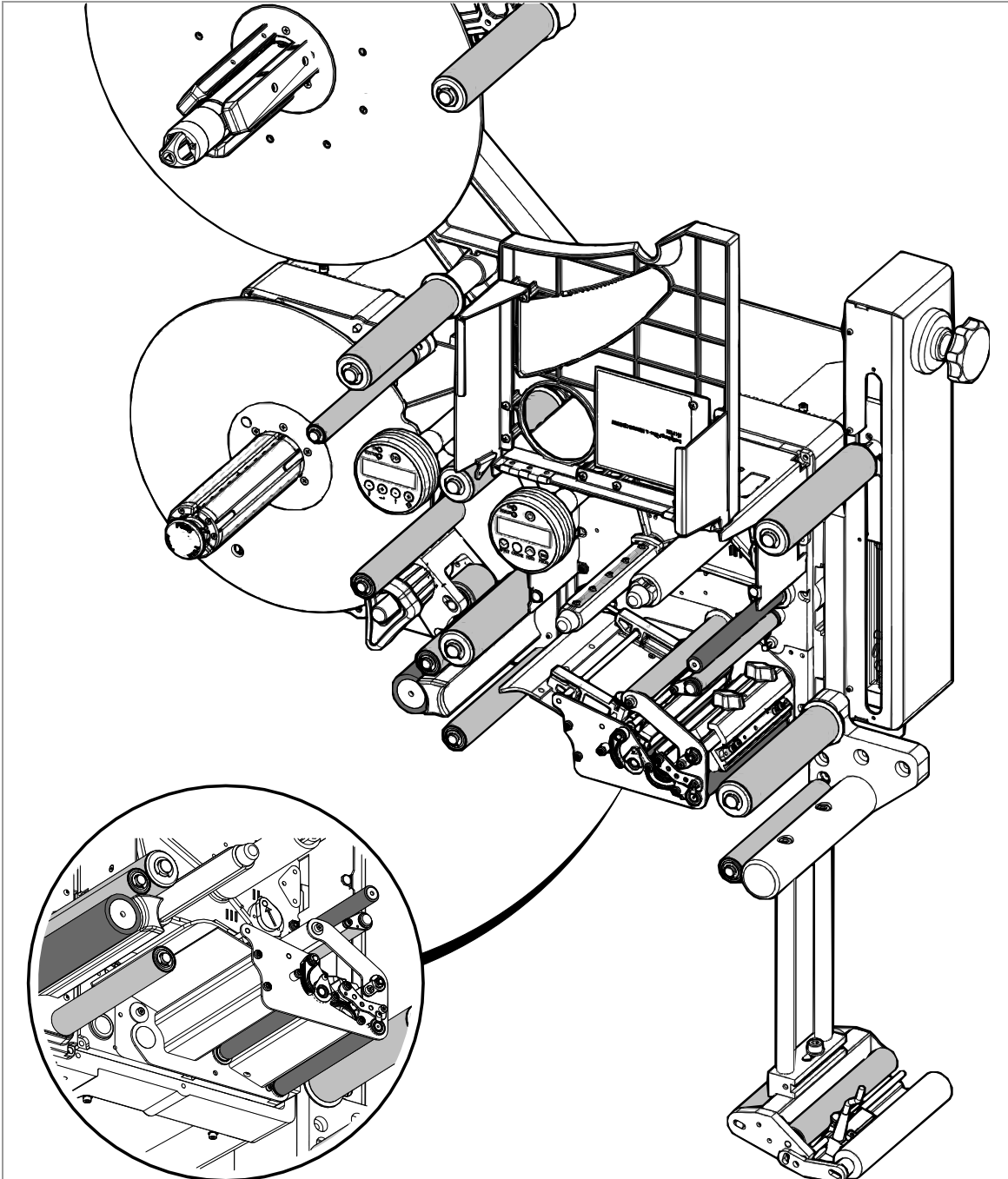
[106] Guide tab (B) on the sensor arm.



## DEVIATOR ROLLERS

Glue from the label material may adhere to the deviator rollers.

→ Moisten a clean cloth with cleaning solvent and wipe off the dirty deviator rollers [107] with it.



[107] Rubber rollers (dark grey) and deviator rollers (light grey) on the ALX 73x.

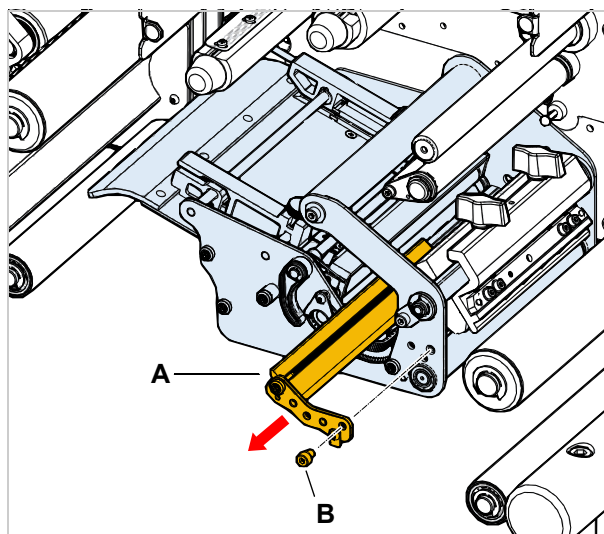
## SENSORS

Clean the sensors regularly to remove any material residue and dust. The cleaning intervals depend on the materials in use.

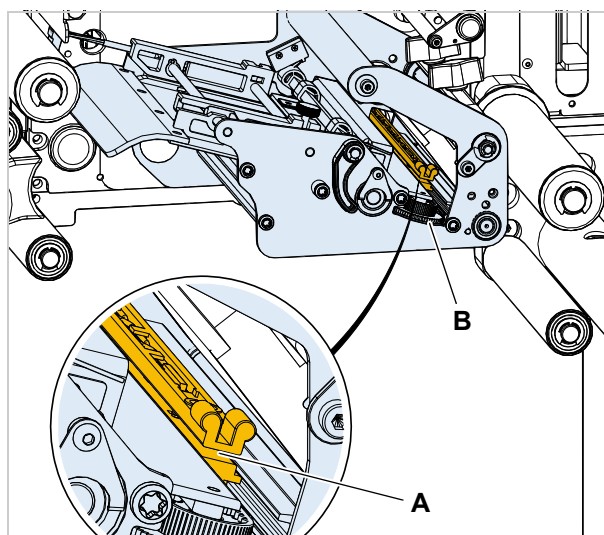
### Cleaning the punch sensor

To access the punch sensor, first remove the guiding section:

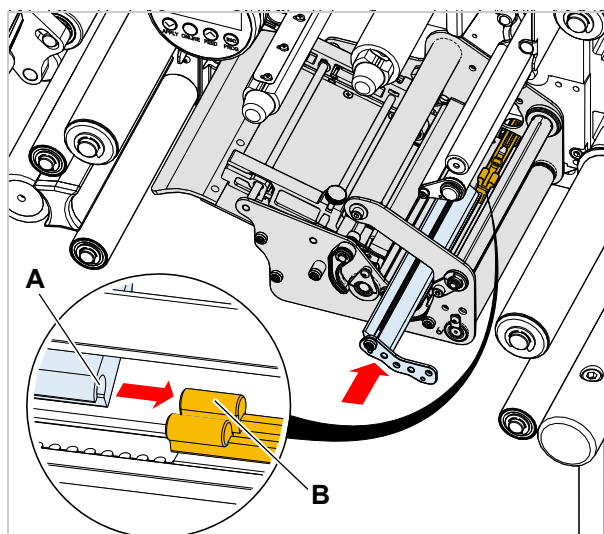
1. Switch off the machine.
2. Remove the mains power connecting line.
3. Remove the material and ribbon.
4. Remove the bolt [108B] (using 3 mm Allen key).
5. Remove guide section [108A] from side.
6. Write down the position of the sensor thumb wheel [108B].
7. Turn the thumb wheel all the way to the outside to move the sensor arm.
8. Using compressed air, blow out the gap [109A] in the sensor arm (canned air is available as an accessory).
  - ▮ If the sensor is heavily contaminated, use cleaning solvent and a lint-free cloth to clean the sensor.
9. Reinstall the guiding section and fasten it with the bolt.
  - ▮ Push the guiding section with the groove [110A] over the rear guide tab on the sensor arm [110B].
10. Move the sensor back to its original position.



[108] Remove the guiding section (A).



[109] Sensor arm (A).



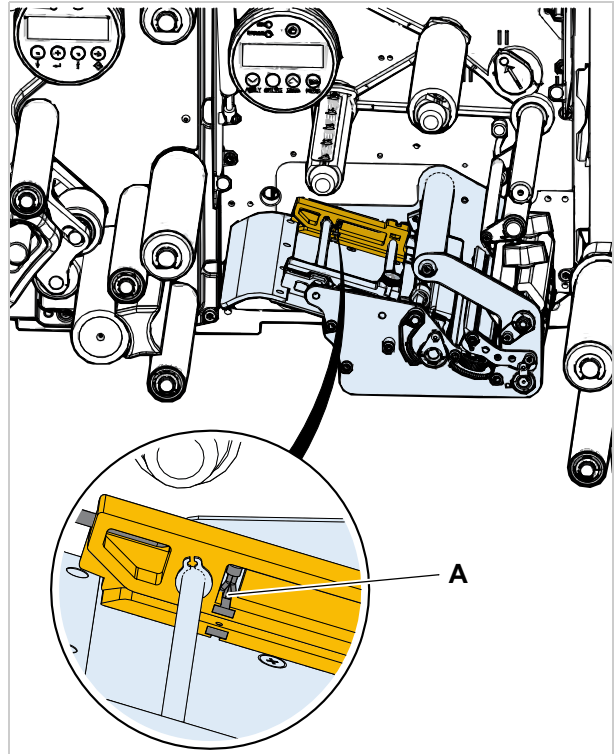
[110] Guide tab (B) on the sensor arm.

## Cleaning the material end sensor

The material end sensor [111A] is located inside the material guide. The sensor must be cleaned of material and dust residue regularly. The cleaning intervals depend on the material in use.

→ Clean the sensor arm using compressed air (canned air is available as an accessory).

▮▮▮▮ If the sensor is heavily contaminated, use cleaning solvent and a lint-free cloth to clean the sensor.

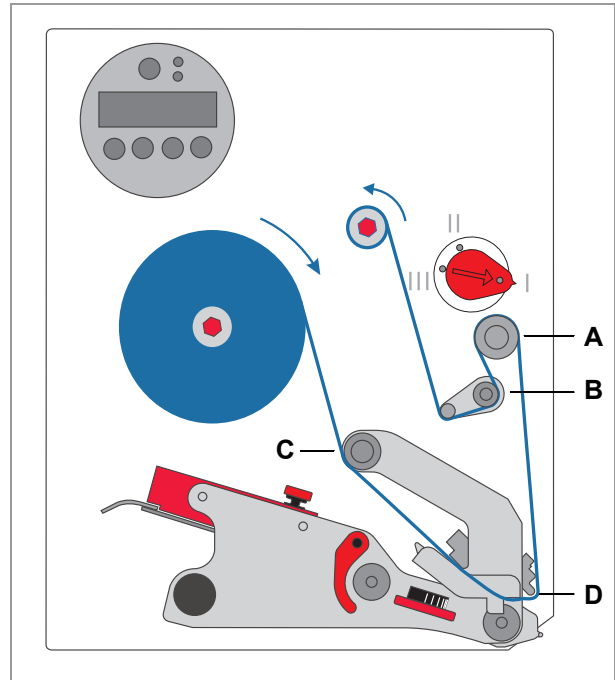


[111]Material end sensor (A) in the inside material guide

## CLEANING THE RIBBON PATH

All parts which come into contact with the ribbon [112] must be cleaned on a regular basis. The following minimum distances apply:

- Once per week  
or
- Every 5000 m of ribbon



[112]Parts where ribbon residue gathers:

- A Ribbon roller
- B Deflector roller + stress relief
- C Deflector
- D Deflector tab on printhead

## REPLACING THE FILTER LINER

**CAUTION!**

A clogged dust filter can result in over-heating, thereby causing a machine failure.

→ Replace the filter liner on the fan regularly.

The replacement interval for the filter liner must be defined according to the specific circumstances. The following factors determine the frequency:

- Dust content of the air
- Operating duration

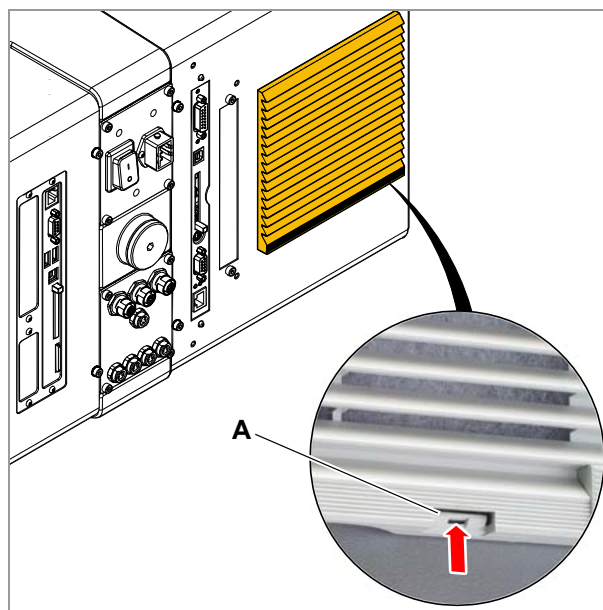
The following error message appears in case of over-heating:

Status num: 5026  
MotorProtect CPU

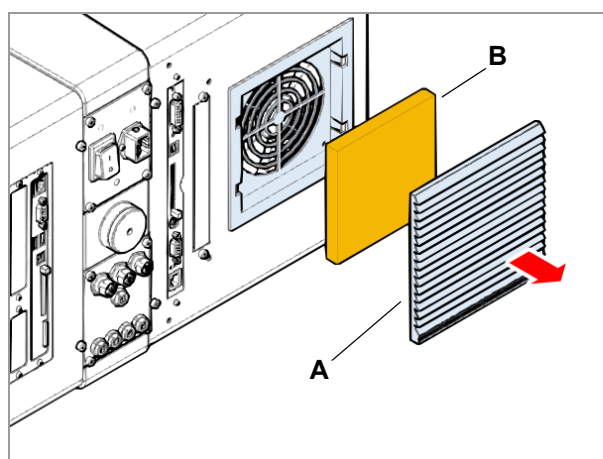
The filter liner can be cleaned by blowing it out with compressed air or by washing it out.

To change the filter liner:

1. Push the locking hook [113A] up with a screwdriver. At the same time remove the fan cover [114A].
2. Replace the filter liner [114B] with a new or cleaned filter liner (item number: A9752).
3. Press the fan cover in place again.



[113] Locking hook (A) on the fan cover.



[114] Remove the fan cover (A).

# EU Declarations

## EU DECLARATION OF CONFORMITY

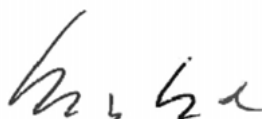
(Translation of original version)

We,

Novexx Solutions GmbH  
Ohmstraße 3  
D-85386 Eching  
Germany

hereby declare that we have designed and built the machine designated below so that it is in conformity with the basic safety and health protection requirements of the directive named below:

<b>Models</b>	ALX 734, ALX 735, ALX 736
<b>General designation</b>	Label print & apply system
<b>Applicable EU directive</b>	2014/30/EU (EMC) 2011/65/EU (RoHS)
<b>Applied harmonized standards, especially</b>	EN 55032 : 2012 EN 61000-6-2 : 2005 EN 61000-3-2 : 2014 EN 61000-3-3 : 2013



Eching, 1.8.2017

Manfred Borbe (Director)

## EU DECLARATION OF INCORPORATION

(Translation of original version)

We, Novexx Solutions GmbH  
Ohmstraße 3  
D-85386 Eching  
Germany

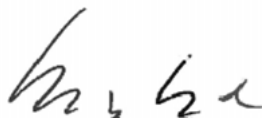
hereby declare that the partly completed machine designated below has been designed and built in such a way as to be in conformity with the safety and health protection requirements of directive 2006/42/EC, annex I, which are marked „fulfilled“ in the following table „Appendix regarding the Declaration of Incorporation“.

The special technical documents in accordance with appendix VII part B of directive 2006/42/EC have been created. We undertake to forward the special technical documentation in respect of the partly completed machine to national authorities at their request. We shall submit them by means of electronic data carrier.

The partly completed machine designated herein is furthermore in compliance with the provisions of directive 2014/30/EU (EMC) and directive 2011/65/EU (RoHS).

The designated partly completed machine must not be placed in operation until it has been determined that the machine in which the partly completed machine has been installed is in compliance with the provisions of directive 2006/42/EG.

<b>Models</b>	ALX 734, ALX 735, ALX 736
<b>General designation</b>	Label print & apply system
<b>Applicable EU directive</b>	2006/42/EC (Machinery Directive)
<b>Applied harmonized standards, especially</b>	EN ISO 12100 : 2010 EN 415-2 : 1999 EN 60950-1/A2 : 2013
<b>The person authorized to compile technical documents</b>	Novexx Solutions GmbH (for address see above)



Eching, 1.8.2017

Manfred Borbe (Director)

## APPENDIX REGARDING THE DECLARATION OF INCORPORATION

List of the essential health and safety requirements applied and fulfilled for the product named in the declaration of incorporation, relating to the design and construction of machinery.

Number Annex I	Designation	Not applicable	Fulfilled	Remark
<b>1.1</b>	<b>General remarks</b>			
1.1.2.	Principles of safety integration		X	
1.1.3.	Materials and products		X	
1.1.4.	Lighting	X		
1.1.5.	Design of machinery to facilitate its handling		X	
1.1.6.	Ergonomics		X	
1.1.7.	Operating positions	X		
1.1.8.	Seating	X		
<b>1.2.</b>	<b>Control systems</b>			
1.2.1.	Safety and reliability of control systems		X	
1.2.2.	Control devices		X	
1.2.3.	Starting		X	
1.2.4.	Stopping			
1.2.4.1.	Normal stop		X	
1.2.4.2.	Operational stop	X		
1.2.4.3.	Emergency stop		X	
1.2.4.4.	Assembly of machinery	X		
1.2.5.	Selection of control or operating modes	X		
1.2.6.	Failure of the power supply		X	
<b>1.3.</b>	<b>Protection against mechanical hazards</b>			
1.3.1.	Risk of loss of stability		X	
1.3.2.	Risk of break-up during operation		X	
1.3.3.	Risks due to falling or ejected objects		X	
1.3.4.	Risks due to surfaces, edges or angles		X	
1.3.5.	Risks related to combined machinery	X		
1.3.6.	Risks related to variations in operating conditions	X		
1.3.7.	Risks related to moving parts		X	
1.3.8.	Choice of protection against risks arising from moving parts			
1.3.8.1.	Moving transmission parts		X	
1.3.8.2.	Moving parts involved in the process			Requires protective device <sup>a</sup>
1.3.9.	Risks of uncontrolled movements		X	
<b>1.4.</b>	<b>Required characteristics of guards and protective devices</b>			
1.4.1.	General requirements			<sup>a</sup>
1.4.2.	Special requirements for guards			
1.4.2.1.	Fixed guards	X		
1.4.2.2.	Interlocking movable guards			<sup>a</sup>
1.4.2.3.	Adjustable guards restricting access	X		
1.4.3.	Special requirements for protective devices	X		
<b>1.5.</b>	<b>Risks due to other hazards</b>			
1.5.1.	Electricity supply		X	
1.5.2.	Static electricity		X	
1.5.3.	Energy supply other than electricity	X		



Number Annex I	Designation	Not appli- cable	Fulfilled	Remark
1.5.4.	Errors of fitting		X	
1.5.5.	Extreme temperatures		X	
1.5.6.	Fire		X	
1.5.7.	Explosion	X		
1.5.8.	Noise		X	
1.5.9.	Vibrations	X		
1.5.10.	Radiation		X	
1.5.11.	External radiation		X	
1.5.12.	Laser radiation	X		
1.5.13.	Emissions of hazardous materials and substances	X		
1.5.14.	Risk of being trapped in a machine	X		
1.5.15.	Risk of slipping, tripping or falling		X	
1.5.16.	Lightning	X		
<b>1.6.</b>	<b>Maintenance</b>			
1.6.1.	Machinery maintenance		X	
1.6.2.	Access to operating positions and servicing points		X	
1.6.3.	Isolation of energy sources		X	
1.6.4.	Operator intervention		X	
1.6.5.	Cleaning of internal parts	X		
<b>1.7.</b>	<b>Information</b>			
1.7.1.	Information and warnings on the machinery		X	
1.7.1.1.	Information and information devices		X	
1.7.1.2.	Warning devices	X		
1.7.2.	Warning or residual risks		X	
1.7.3.	Marking of machinery		X	
1.7.4.	Instructions		X	
1.7.4.1.	General principles for the drafting of instructions		X	
1.7.4.2.	Contents of the instructions		X	
1.7.4.3.	Sales literature		X	

a) Installation by the system integrator



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**NOVEXX**   
SOLUTIONS